February 1958

approach

THE NAVAL AVIATION SAFETY REVIEW

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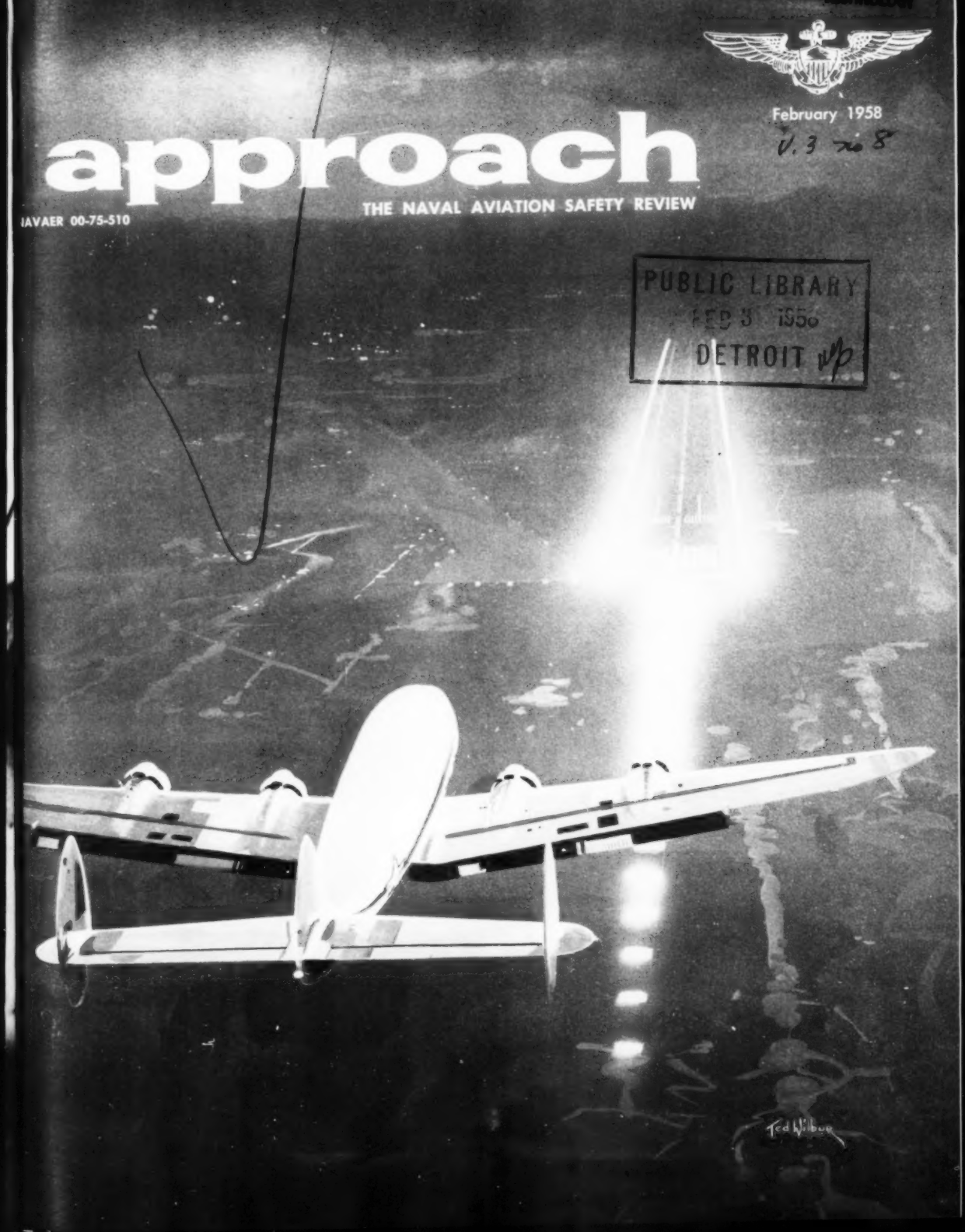

LETTERS

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, U. S. Naval Aviation Safety Center, NAS Norfolk, Va. Views expressed are those of the writers and do not imply endorsement by the U.S. Naval Aviation Safety Center.

Night 'n Day Light-offs

Sir:

. . . Suggest the Naval Aviation Safety Center make night restarts in jet aircraft the subject of an article in some forthcoming edition of APPROACH magazine.

This article should contain factual information gathered from actual pilot experience and published in an effort to educate pilots on the matter of what to expect when such a procedure becomes necessary.

—AAR BOARD

A night light-off is exactly the same as a day one. The only difference we can think of would be the fact that a pilot might want a little margin for error at night, inducing him to eject a little higher if he did not get a light.—Ed.

Wants Results

Sir:

I think it would be interesting if the APPROACH would publish the results of disciplinary action taken against flight violators. I am of the opinion that very little action is ever taken, even though command letters constantly threaten it.

IN HACK

You'll notice we have recently started publishing selected violations and consequences.—Ed.

Figures Don't Lie, But . . .

Sir:

I would like to see if you could cut down on the number of meaningless statistics that we in aviation are forever putting out to confuse our commands.

We have the weekly summaries on a calendar year basis, the safety award on a fiscal year basis, and many more . . .

Confusing statistics only tend to create an attitude of well—"figure it the other way and it won't look so bad." Statistics can be made to prove anything and we all know that, so why cloud the issue with this Calendar—Fiscal business?—go one way or the other and give our units one set of figures to be proud of and to improve on.

Whichever way you do it would be okay . . . At the rate we are going, we will need Univac soon to figure a squadron's score in any number of different ways to prove we are doing better . . .

J. E. SHIELDS
Major USMC
S. O. MAG—31

Effective 1 January 1958 everything — "Weekly Summary" included—will be fiscal year!—Ed.

approach

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This periodical contains the most accurate information currently available on the subject of aviation accident prevention. Contents should not be construed as regulations, orders or directives unless so stated. Material extracted from Aircraft Accident Reports, (OpNav 3750-1), Aircraft FLIGA Report (3750-10), and Anymouse (anonymous) Reports may not be construed as incriminating under Art. 31, UCMJ. Names used in accident stories are fictitious unless stated otherwise. Photo credit: Official Navy or as credited. Articles may be reprinted with prior permission.

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Tiger or Driver?

Sir:

. . . "Unknown Quantity" . . . (APPROACH July 1957): The human factor problem was very well presented and thought-provoking. The suggested remedy by means of file cards and/or safety boards, however, was cause for some trepidation. Even though it was fairly brought out that the cards or board system depended upon avoidance of "gestapo" or "little black book" tactics, there is no assurance that it would not degenerate into that in some instances.

Even if the system worked well in the majority of cases, a few witch hunts or kangaroo courts would more than nullify any value otherwise obtained. Also, by definition of the term, there will always be "below average" aviators no matter how high the standard for average becomes. Now it seems logical to assume that any adjustment problems confronting these individuals would be intensified by the thought of a card file handling over them with every minor error being dutifully recorded. . . . by other pilots whose own inherent "human factor" adds compounding complexity to the human factor they are trying to evaluate.

To add another point, your article mentioned the reluctance of pilots, who through misguided loyalty to their squadron mates, have failed to bring to light their dangerous tendencies or qualities. Won't this reluctance be further aggravated with the knowledge that any adverse comment will be recorded as a permanent black mark?

Confidence is one of the most important aspects of an aviator's makeup. It is the foundation for the aggressive spirit, that nebulous quality that separates the *Tigers* from the *Drivers*. The card or board system does not have the earmarks of a confidence motivator. It would tend to reduce the appearance of confidence a squadron had in the individual, thus undermining the individual's self confidence.

Each case and each pilot is different and must be treated as such. A continuing awareness of the human factor problem such as provided by your fine article, will create an atmosphere where the need for correction or elimination of individuals with hazard potential type problems will be recognized without recourse to file cards and safety boards.

DANIEL M. WILSON
Capt. USMC
MCAS, Miami

Five C's

Sir:

. . . A comment on the "Four C's" listed in October APPROACH (Tip Tank):

With all due respect to the Coast Guard I will stick my neck out and make the following statement: All naval aviators should know that there are *five* C's to be followed when lost. The fifth "C" is CONSERVE.

In this day of modern jet aircraft this fifth "C" has become of paramount importance, however it is nothing new. Back in 1949 when I first ventured forth to try my wings the Naval Air Training Command was teaching the Five C's. Today they are still being taught. One consolation in the old days was the fact that the prop aircraft burned much less fuel per hour and the margin for error was much greater.

Now such is not the case. Woe be to the hot pilot who booms around the wild blue at full bore in the triangular pattern or twisting the radio knobs. He will have a fascinating story to tell his grandchildren of his ejection above mach 1. The boys at the big green table will love it too . . .

R. F. AMUCK, Lt.
Instructor, P. G. School

Hardhat Bag

Sir:

For those who have your said billiard ball problem, [Hardhat rolling off counter—page 1, Oct APPROACH] try having your parachute loft make up a canvas bag with drawstring large enough to hold hardhat, oxygen mask and knee pad.

This bag affords protection for your equipment (*if* you leave it laying around), allows you to hear the briefing, march confidently and *safely* across the ramp, and make your flight without delay. Bag can be stowed under knee pad during flight.

As for the picture [Page 8 June APPROACH] /#$%#$%—and in a **pro mag too.**

ANOTHER (JG)

Such a canvas bag used for mask only is fine, except that it eventu-

Continued next page

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Photo Credit: Page 12—USAF "Flying Safety," Page 13, "The MATS Flyer"

Letters

Continued

ally gathers lint. But your mask shouldn't go into a "catch-all" bag with hardhat, kneepad . . . Sooner or later you'll toss in cigarets, matches, pencils, and other trivia that just isn't good for masks. As for stowing bag under the kneepad, it may fall and jam a control —so perhaps it is best to avoid. A lint-free cleanable plastic bag, like the supermarket puts potatoes in, makes a real good oxygen mask container. Can be folded into flight suit pocket, too.

Your reference to the picture is garbled—Ed.

Safety? Wire

Sir:

Re the article on "Safety Wire" on page 21 of the October 57 issue. To combat just such problems as maintainance installing incorrect safety wire, is the reason why most major airlines require each pilot to carry the following tools in his *personal* flight bag of charts, publications, . . . flashlight, screwdrivers (conventional and Phillips), and a pair of *pliers*.

If the pilots had such tools handy, they would not have had such a hairy time. It is food for thought.

LCDR JOHN RALSTON, JR.
NATC, Patuxent

Safety Wire vs Breakaway Wire

Sir:

I have heard and read of numerous instances where safety wire was found, in the stress of emergency, to be very unsafe because it was not the type of wire intended to be broken by hand.

I suspect that a major cause for such instances is the indiscriminate use of the term "safety wire". The strong wire used to prevent a bolt from turning loose is indeed safety wire in its true sense, but the light, breakable wire that is used on emergency switches, levers, fire extinguisher triggers . . . shouldn't be referred to as safety wire. A much more appropriate term seems to be "breakaway wire".

It is suggested that maintenance and operating personnel unanimously adopt the term "safety wire" for *locking* wire only, and that the term "breakaway wire" be used for all wire that is intentionally designed to rupture.

INTERESTED

The term "safety wire" does have broad connotations when its purposes are not specified. While the creation of a new term does not assure the use of proper type and size wire it may better identify the type wire desired. In most instances where the wrong wire is used we find the mechanic is using a substitute for lack of the proper brass or aluminum wire. Further comments on this subject are welcome. —Ed

Scuttled From Within

Sir:

All squadron commanding officers share the deep concern for the tragic loss of personnel and equipment as expressed in NavAirLant 55–57.

However, a crystal ball is not required to predict that this trend will probably continue until such time as the personnel planners, all along the line, assume their share of responsibility for "holding the safety line" by bringing the detailing of qualified personnel into consonance with the established training cycle of each operational unit.

It frequently appears that our best efforts toward safety are being *scuttled from within*. The routine detachment of experienced pilots either immediately before or during a deployment when operational commitments are heaviest and operating conditions most hazardous does not appear to promote safety.

Neither does the assignment of excess pilots, well above the squadron complement, appear to be contributing to safety at a time when limited "Bravo" funds further reduces available training time for each pilot. A similar unsafe personnel situation is one in which all experienced personnel are transferred immediately after a deployment leaving the unfortunate Commanding Officer in a condition exactly like the O-in-C of a Basic Training Unit with no instructors assigned.

Perhaps it is time to reevaluate some of our basic personnel policies in the light of safety considerations in order to determine some "safe and sane" detailing procedures. Perhaps some of our more experienced pilots who are assigned as junior assistants on board ship could help our safety program more effectively in a flying billet. Perhaps a return to the Operational Advanced Training Command system of earlier times might result in a higher degree of operational readiness and a much higher standard of safety. Or perhaps, all we need is some good old-fashioned horsesense applied to the detailing of pilot personnel.

Granted that we are all concerned with safety, commencing with the squadron commander; then let's all do something about it. How about the detailing offices giving the commanding officer an assist instead of sabotaging his best efforts?

SQUADRON COMMANDER

It would appear that the writer virtually had a premonition of things to come, in that all the items mentioned above were the main topics of discussion at a recent AdHoc committee meeting.—Ed.

Re: Channel Vision

Sir:

"Channel Vision," APPROACH, Dec. 1957 makes a good point. BUT, there are many other cockpit functions that can encourage [radio] Channel Vision. Eliminating one weak spot is a partial answer. A better answer is "Develop a technique that will allow the man to fit the machine and the problem . . ." Remember, the mock-up board and the installation engineer at the factory cannot please all pilots for all situations all of the time.

As a USNR-R instrument instructor on Weekend Warrior duty, I have encouraged that radio tuning, RadFacs information searching and navigation log keeping be fitted into the scan pattern. Breaking the job into several components, placing each component action *in its turn* as an item in the scan pattern has helped eliminate the graveyard spiral. The All-Weather Flight Manual, NavAer 00-80T-37, (possibly obsolete,) pages 5-9 and 10, tabulates Basic Scan and Crosscheck patterns. Perhaps it should include a third column titled "Util-

ity Scan." Delegation of 'assist' responsibility to a copilot is not an *out* for multi-engine multi-pilot operation; a *true* plane commander will fit into his scan a 'check the copilot's actions' item.

Perhaps starting 'cold' on the RadFacs would serve as a good example. Although good flight planning will have the picture spelled out in the NavLog, let's face the quick change en route.

The situation:

I'm east-bound on Red 35 for NAS Hutchinson. Approaching HUT, I receive instructions to divert to Wichita. Advise NEWTON intersection estimate, report over NEWTON.

The problem:

Where is NEWTON and how do I set up for it?

Actions Required:

1. grab book, back cover up
2. Center of page find Wichita
3. note page 67
4. open to front half of book (I hit page 53)
5. bracket in on page 67—*bend book to hold page*
6. scan area of HUT & ICT find NEWTON East leg of HUT, North leg of ICT
7. ICT is on 332
8. crank receiver in direction of 332
9. go to 332 indicated-peak receiver aurally—don't look—listen for identification.
10. got it—ICT—check RadFacs —going from A to N
11. note 24 miles HUT-NEWTON

(I know I've been making 171 knots ground speed on an easterly heading—computer would say 8.4 minutes. *But* 180 is 3 miles per minutes or 8 minutes . . . use this estimate.)

In the case of a person who has a scanning cycle of 4 seconds, introducing these 11 steps, one on each scan would indicate a problem solution in less than one minute or less than two minutes if a double-check on station identifier is made.

Mr. Holmes would have said "Elementary, my dear Dr. Watson." Pettibone might say "Fundamental"! But I haven't seen it spelled out in the book!

When the letter stirred me and I started to write, I didn't expect to get so long-winded and detailed. Spelling out the detail helps express the philosophy that "I must develop techniques and skills that will allow *me* to carry out *my assigned mission in this equipment* using existing facilities and *standard airways procedures.*"

A training technique might apply to classroom use. One approach might be to use a photo dark room or projection room (very dark). Assign or state a problem. Fire the starting gun, then douse the lights —cycle them ON 2 seconds, OFF 5 seconds (the physiologists might recommend more realistic cycling times).

WEEKEND WARRIOR

Kudos to VMAT-20

Sir:

Re: "We Gotta Go, Man!," October APPROACH . . . congratulations to VMAT-20 for their fine operating record with the Wright R3350-26WA engine in the AD aircraft.

We wholeheartedly concur with the approach that top operational and maintenance practices are essential in having a first line squadron and that only one of these practices is not enough, for they both go hand-in-hand. Also the proper training of new men and refresher courses for the older hands will always more than repay the efforts and expense involved.

Wright Aeronautical Division operational and maintenance training teams have conducted classes to assist in the overall program, but, of course, we do not begin to have enough capacity in this area to fulfill the requirements. It, therefore, becomes necessary that the individual squadrons pursue this type of activity.

The philosophy used by VMAT-20 of good training, careful screening, and proper selection of personnel for positions, is the ultimate and should be encouraged to the fullest extent. It is very apparent that this squadron has taken its responsibilities seriously and stopped to think so as to make sense out of practices and procedures.

The operational recommendations contained in this article are generally in accordance with our standard practices with only minor variations. However, further discussions would be desirable regarding spark plug fouling preventive measures, as we have not encountered the problem you mentioned of difficulty resulting from ground idle operation at lean mixtures, other than the tendency to create backfiring in this type of engine.

Again, careful adherence to good practices and thorough training in them definitely produces more "Go." Our heartiest congratulations for this excellent article which we are sure will be widely read and prompt other squadrons to achieve the fine record reported.

J. V. MICCIO
Vice President and
General Manager
Curtiss-Wright Corp

Is This Trip Necessary?

Sir:

Recently, an accident, WHICH NEED NOT HAVE HAPPENED, resulted in the death of a young naval aviator, added another young widow to the growing ranks of "ex-naval aviator's wives," and reduced the combat potential of our fleet by one expensive first line fighter.

The accident occurred during a demonstration of our air power in the immediate vicinity of an attack carrier. While making a low altitude HIGH SPEED FLY-BY the aircraft was observed to enter a pitch oscillation—then disintegrate in flight.

During the past two years, we have lost 10 pilots and enough aircraft to equip a fighter squadron.

Was the cost of these demonstrations, in lives and equipment, equal to the value, if any, derived therefrom? Considering the known difficulty of controlling aircraft, flown at high subsonic speeds at low altitude, could this by any manner of thinking be considered a SAFE OPERATIONAL MANEUVER? Certainly, no logical thinker could arrive at any answer, but NO ! ! !

Compare the situation to that of the ship captain, division commander, or force commander who willfully, wrongfully, or negligently hazards a vessel of the armed forces. The comparison is a fair one and the consequences of such acts are clearly spelled out in the UCMJ.

We have outlawed flathatting. We punish offenders. Let us also outlaw the HI-SPEED FLY-BY. It serves no useful purpose but instead creates a hazard area, both for those engaged and those observing. If there is a need for flybys, they can be accomplished safely at medium or slow airspeeds which will permit the viewers to SEE the flights pass by.

"YOU'LL NEVER PRINT IT"

Your figures are a bit high, but the facts remain just as tragic, so fly-bys are being even further discouraged topside—reference recent CNO and ComNavAirLant dispatches. Your suggestion re slower speed is valid, too.—Ed.


RUNWAY
SHORTH

WITH apologies to Mr. Gregg, well known for his shorthand system, runway markings and airfield lighting have something in common with his hooks and squiggles; both impart a meaning through signs and symbols. The catch is that even though you know it is shorthand, if you can't read it, you won't know what it means. The same goes for the light patterns and painted symbols around an airfield.

Every pilot gets acquainted with airfield lighting and marking very early in his flying career. However, since there is no single publication dealing with the subject from the pilot's viewpoint, an individual's knowledge may, through no fault of his own, end with just an acquaintance.

Too, there are different runway marking and approach lighting systems in use today. In this age of lower instrument minimums and higher performance aircraft, with distance and reaction time compressed into smaller and smaller chunks of time, being familiar with the different systems is as important as knowing that markings and lighting exist.

One qualification deserves mention right here. This will *not* be a discussion of the merits of one system over another but is merely a brief review of the various markings a Navy pilot will find at airfields in the United States.

Any study of airfield lighting and marking is easier if the subject is broken into three separate elements: runway markings, airfield lighting, and approach lighting.

RUNWAY MARKINGS — Before going into the individual marking systems there are a few details which should be covered first.

Navy requirements call for runway stripes, landing area markers and abandoned pavement markings to be painted with reflective white paint unless otherwise specified in unusual cases. Runway numbers shall be painted with non-reflective white paint. The lack of contrast between concrete and white paint is taken care of by providing that the white markings shall be edged with one foot of black paint.

Continued from preceding page

Those familiar numbers at the end of all runways indicate the direction of the runway but it might be of interest to remind you that they are magnetic directions—just as the local surface winds given by the tower are magnetic directions.

RUNWAY MARKINGS: A-N-C— Once upon a time you could head toward an unfamiliar field and feel sure of finding the type of runway markings shown in Figure 1. It was a joint system in use by the Air Force, Navy and CAA and was in effect until several years ago. Now outmoded by new marking standards, the system is still found at a few USAF, Navy and CAA fields.

Runway length is indicated by 50-foot long painted stripes at the threshold, with each stripe equal to 1000 feet. A half bar indicates 500 feet of runway but is not used with runways over 5000 feet long. From 5000 feet and up, length is indicated only in full thousands of feet.

You will never get cheated by such indicators as they never show more runway than is available. For example a 5900-foot runway will only show five stripes (four vertical and one horizontal as seen on final approach) even though it is only 100 feet short of 6000 feet.

With these earlier markings there is no painted centerline. Longitudinal stripes are painted on the runway, parallel to and 15 feet on each side of the runway center. They begin and end 25 feet from the numbers at each end of the runway.

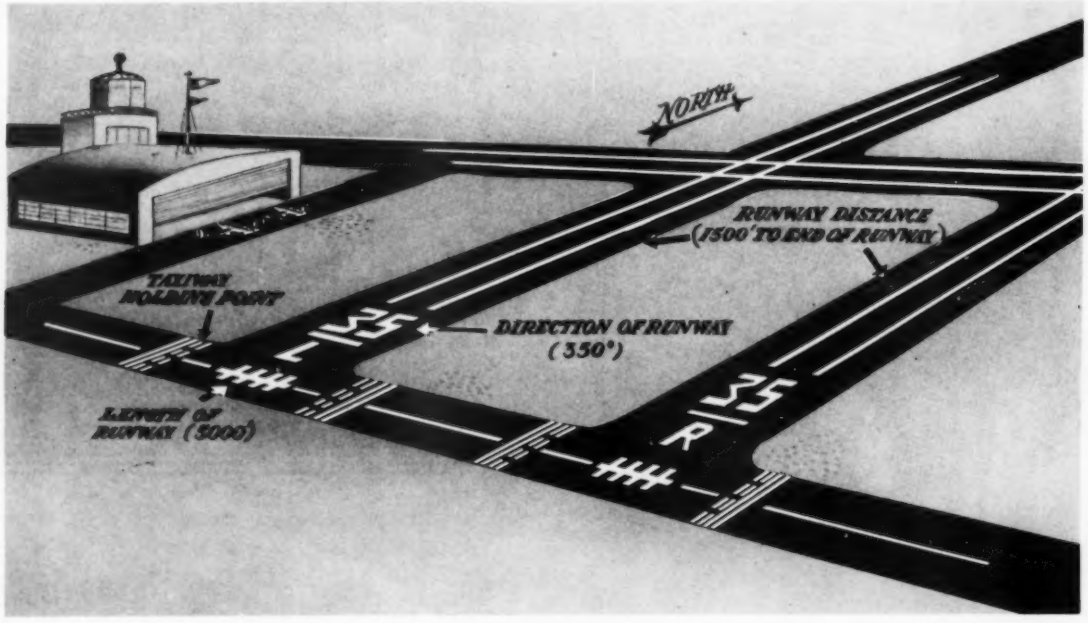
The markings appearing as a series of broken stripes down the runway from the approach end are intended as distance markers and are 1500 feet from the ends of the runway. In practice these distance markers are seen as solid blocks of painted surface rather than a series of stripes.

NEW NAVY MARKINGS — the Navy runway markings which replaced the joint system are illustrated in Figure 2. One of the first things which may be noticed is the lack of a requirement for the familiar runway length symbols at the threshold. Although there is no requirement for these, some runways retain this feature.

Markings which might be mistaken for the length symbols are actually special threshold markings, consisting of eight 150-foot stripes at the beginning of the runway. At Navy fields they are used only on instrument approach runways where the threshold paving is black. (See Fig 4).

The present standards now include a runway centerline mark-

Fig. 1—This early system of runway markings was used by the Air Force, Navy and CAA (ANC system). Some fields still have it but are changing as paint money becomes available.



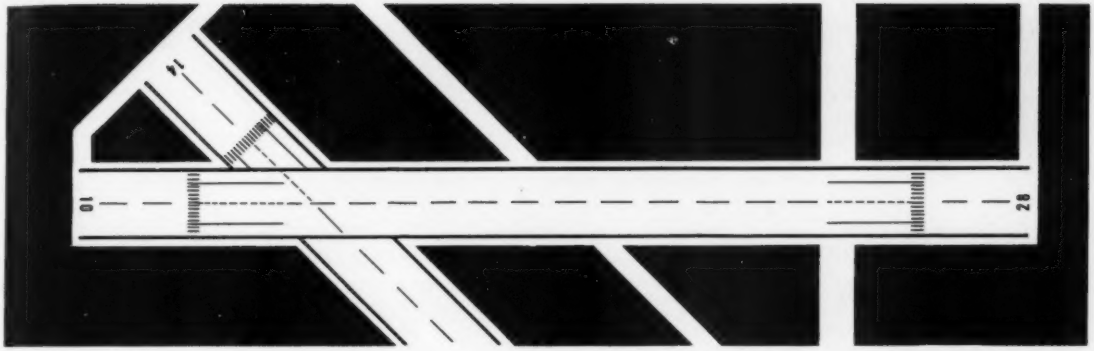


Fig. 2—These Navy runway markings replaced the ANC system. Note that there is no requirement for placing runway length symbols at the threshold. The series of short stripes are officially called a landing area marker and are placed 500 feet from the threshold.

ing formed by a broken line having 120-foot dashes and 80-foot spaces. In addition to the centerline there is now a runway side stripe on each side of the runway. These are unbroken white stripes located 72 feet to each side of the centerline. Both the centerline and side stripes are two feet wide.

Another new item is a landing area marker (occasionally called a touchdown marker) Figure 3, located a minimum of 500 feet from the runway threshold. It consists of a series of stripes 30 feet long, 2 feet wide, each stripe running parallel to the runway. If intersections interfere with standard location, the marker may be placed more than 500 feet down the runway.

Of note are several features connected with the landing area marker. For a distance of 530 feet toward the runway midpoint the centerline stripe is broken into 30-foot dashes and 20-foot spaces. With the regular centerline made with 120-foot dashes and 80-foot spaces the shorter dashes and spaces make a distinctive pattern and permit some indication of an aircraft's position along the runway. An additional item in the landing marker area is a stripe placed 40-feet on either side of the centerline. These also extend 530 feet toward the runway midpoint. In effect, a pilot at, or just beyond

Fig. 3—Details of the landing area marker are shown here. The threshold, not visible, is to the left.

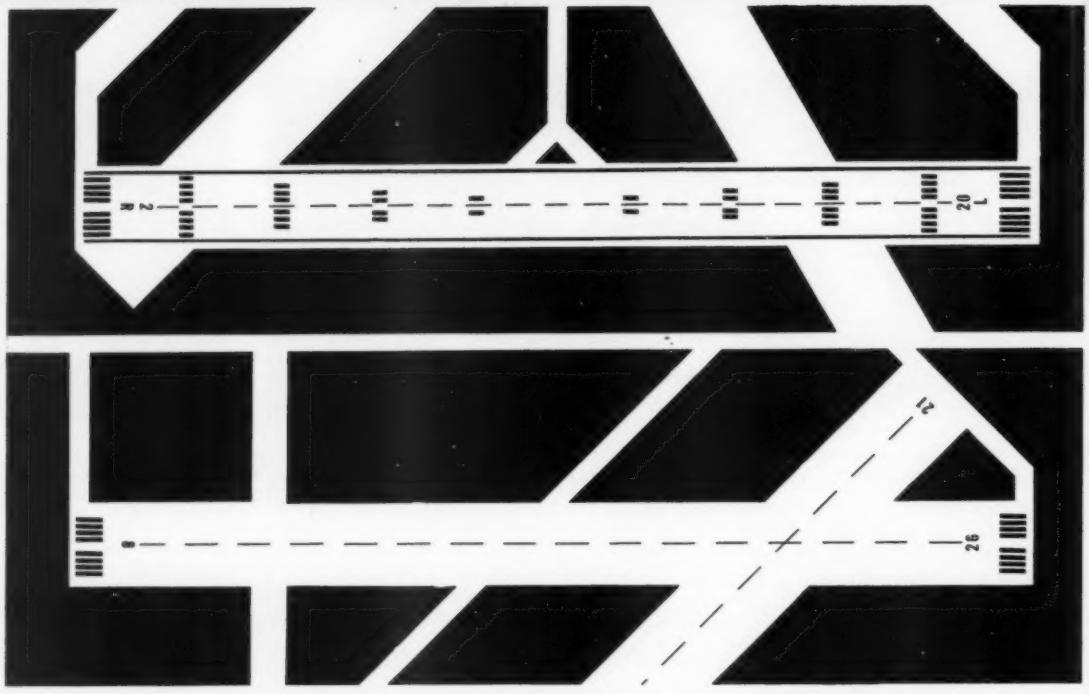


Fig. 4—There are three types of runway markings under the U.S. National Standards system. At the top is an "all weather" runway. Note the groups of longitudinal stripes along the first 2000 feet of runway.
The instrument runway has threshold markings and a center line but no side stripes. VFR runway markings have only the centerline.

Continued from preceding page

the landing area marker will see five runway stripes.

NATIONAL STANDARDS MARKINGS — With slight differences, the U. S. National Standards runway markings follow the International ICAO system. The National Standards markings will be encountered at both civilian and Air Force fields. Figure 4 illustrates the three categories of runways and their markings.

An "all-weather" runway is shown at the top of Figure 4. In ICAO Annex 14 this type of runway is referred to as an "Instrument runway served by precision approach system." Most prominent parts of this marking style are the groups of longitudinal stripes along the first 2000 feet of runway. These groups are 500 feet apart and serve partly to indicate the position of the aircraft along the runway. The primary name for them is touchdown zone markings.

The eight bars indicating a threshold are 12 feet wide and extend a minimum of 150 feet down the runway. Five hundred feet from the end of the runway is the first of the touchdown zone markers, also a group of eight bars. There should be little likelihood of mistaking one for the other as the touchdown zone markings are six feet wide and 75 feet long.

In the National Standards markings, the centerline is the same as the Navy markings; 120-foot dashes and 80-foot spaces. Width of the centerline must be at least three feet and the ICAO manual notes that widths up to 10 feet have been used.

Runway side stripes are also included in the all-weather markings. These are three feet wide and will normally be 70 feet from either side of the centerline. If the runway is 150 feet wide or less, the side stripes will have their outer edges approximately on the edge of the runway.

The two other drawings in Figure 4 concern "instrument" runway and "all other" (or VFR) runway markings.

OTHER MARKINGS—Air Force runways have additional touchdown markings in the form of three-foot wide yellow stripes placed across the runway some 2000 feet from either end of the runway. Also there is a runway midpoint marker consisting of two bands of paint, two feet wide, extending across the runway.

On some runways with paved overruns the areas are marked either with yellow chevrons or stripes across the area. With either type markings it becomes a non-touchdown area. At Air

Force bases, many of these areas are officially labeled blast pads; primarily used to prevent erosion of runway ends from prop and jet blast. They are made of highway paving material about two inches thick and do not have runway bearing strength.

RUNWAY & TAXI LIGHTING — There are, of course, three basic colors for runway and taxiway lights. Green for threshold, white for runways and blue for taxiways. At certain fields, red lights may be used to mark the overrun area.

Navy standards for distance between runway lights are generally in agreement with other aviation standards. BuAer's "Planning Standards for Air Stations" notes that spacing of runway marker lights shall approach but not exceed 200 feet and can be installed as close as 70 feet to reduce a large gap in the lighting pattern of an intersection.

On runways with semi-flush lights there is a split color (yellow and white) which acts as runway distance markings. These split-color lights are located at both ends of the runway for a distance of 1500 feet. The yellow portion of the light will be seen only on the last 1500 feet of available runway during takeoff or landing. High intensity lights do not have this split color feature. At civilian fields yellow runway lights will be seen on the last 2000 feet and indicate the "caution zone."

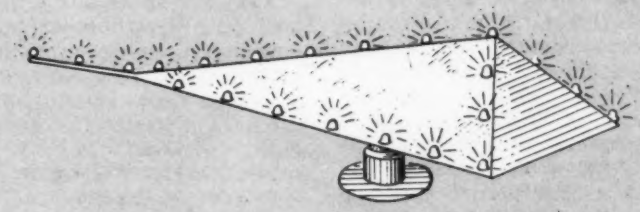
According to Navy standards, taxiway lights have a variable spacing distance, depending upon the length of the straight taxiway segment or radius of curve on a taxiway turn. On a straight segment over 200 feet in length, the space between lights may approach but not exceed 200 feet. On a straight segment 200 feet or less, the distance between lights may approach but not exceed 50 feet.

Spacing on a curve follows the rule that the sharper the radius of curve, the closer the taxiway lights: i.e., on a curved edge with a radius of 50 feet, the maximum distance between lights is 24.5 feet. On a radius of 100 feet the maximum spacing is 34.5 feet.

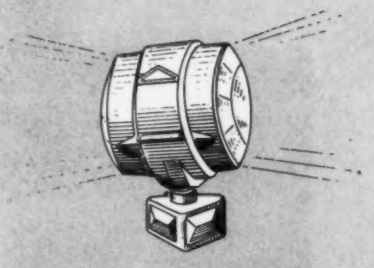
Taxiway lights shall be located a uniform distance, preferably two feet outside the paved or marked edges of taxiways. On runways which are also used as taxiways, the blue lights shall preferably be five feet outside the paved or marked edges (but not closer than two feet to the line of runway lights).

Here is an item which might be new to some pilots. Two blue lights spaced five feet apart and placed on each side of a taxiway entrance into (or exit out of) a runway or parking apron are called "entrance-exit" lights. Next time you are using the threshold lights to estimate the runway turnoff, look for those two blue lights close together. Caution: a background of taxiway lights can confuse the issue so you have to be relatively close to the turnoff to make an accurate identification of the entrance-exit lights. One final note on this: these will not be found at intersections of taxiways or at locations that are not normally runway entrances or exits.

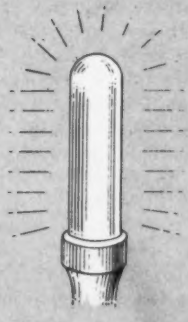
Threshold lighting (those welcome green lights marking the beginning of the runway) is



At night when the lights outlining the tetrahedron are flashing, it means the ground visibility is less than three miles or the ceiling is less than 1000 feet, or both.



During the day, when the rotating beacon is turned ON, the ground visibility is less than three miles or the ceiling is less than 1000 feet, or both.



A flashing amber light, either day or night, (usually located above the rotating beacon) indicates right-hand traffic.

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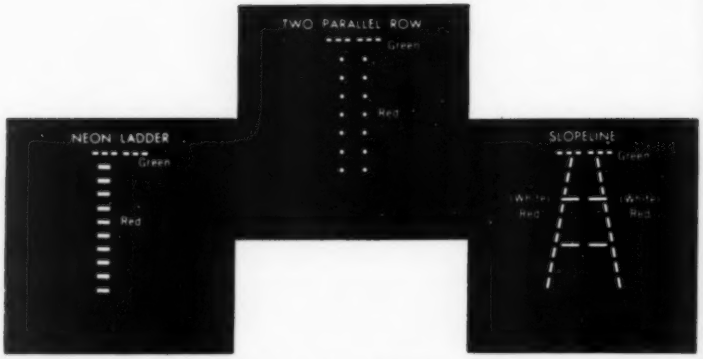


Above are diagrams illustrating U.S. approach lighting systems which served up to 1950. The *Neon Ladder* is pre-World War II and the *Two Parallel Row* is a war-time military system. Few of the CAA-developed *Slopeline* lights are in use.

something of a problem when trying to find the standards associated with it. At one time threshold lighting consisted of a minimum of four green lights spaced across the end of the runway. Present day practice is to leave the center of the runway clear and to group the lights to each side of the runway; forming in effect two green bars.

The ICAO annex says threshold lights shall be equally spaced between the lines of runway lights or arranged in groups near the lines of runway lights. The minimum number of lights shall be at least four, with one light in line with each line of runway lights. One ICAO recommendation is that the lights be arranged to show simultaneously at both ends of the runway. Presumably this would mean a pilot just touching down should be able to see the threshold lights on the other end of the runway.

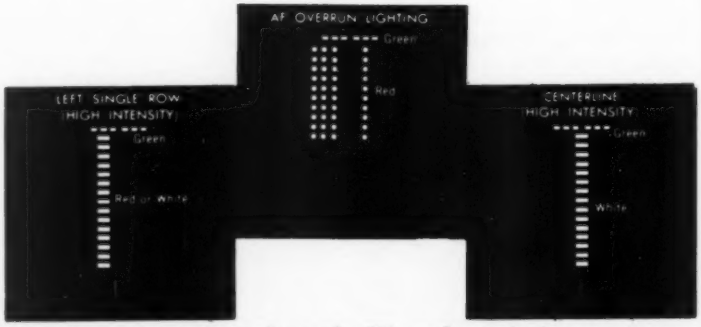
An illustration of threshold lights in the "Planning Standards for Air Stations" shows a group of six lights on each side of the runway with the outboard light in line with the runway lights. These threshold lights are shown as elevated lights and are five feet apart. For runways wider than 244 feet, semi-flush lights are added, equally spaced between the side groups.

For runways more than 100 feet in width, the U. S. Civil standard requires each group of threshold lights to contain not less than four lights. This standard also notes that the outermost threshold light in each group shall be located in line with the rows of runway lights. Where there is a usable overrun area at the end of the runway, elevated threshold lights, if used, may be located outboard of the runway lights. In such case the innermost light of each group of elevated threshold lights will be located in line with the corresponding row of runway lights.

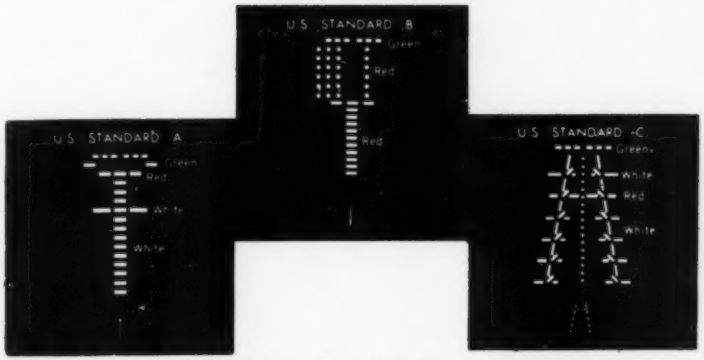
Thus at civil fields the threshold lights may appear to be outside the runway lights indicating there is a usable overrun; if inside, there is no overrun (Helpful information only if you are wondering whether your landing rollout will end in the boondocks or overrun.)

APPROACH LIGHTING—At the present time, electronic landing systems (GCA and ILS) are actually landing aids. They bring the aircraft into close position to the runway but the final act of landing must be carried out by the pilot. With the visibility and ceiling minimums now in use, approach lights are helpful in providing final alignment with the runway.

These lights extend from the runway threshold out into the approach zone for a distance of 1000 to 3000 feet and usually constitute the pilot's first visual



These systems appeared in the early 50's and remain in use at many fields. The *Left Single Row* was the civil standard until replaced by Standard A. Both the *AF Overrun* and *Centerline* systems can be modified to meet the new national standards.



Three types of approach lights adopted as the present National Standard. Standard A is the civil system; B is Air Force and C is Navy. Only Navy installation is at NAS Patuxent River. The Air Force system is red-lighted while the civil system is white except for red lights near the threshold.

contact with the ground during a low visibility approach.

As mentioned previously, the primary purpose of this article is merely to review the systems which a Navy pilot may find at airfields in the U. S. Repeating this qualification is important when discussing approach lights; the question of which system is best has been as controversial as the hem line at a Paris fashion conference.

There is general agreement that approach lights are nice to have. But the agreement usually stops there—as it has been estimated that a dozen different systems are in use in the U. S.

Standing a safe distance from the bonfire, the reasons for the varied systems appear reasonable. One is economy. Approach lights are an investment which must last many years, thus there is a reluctance to exchange one system for a new one which itself may be obsolescent in a short time.

The second reason for disagreement over a preferred system concerns the organizations which have the greatest interest in all-weather flying: The airline pilots, Air Force, and Navy. Here, due to the types of aircraft being flown, basic differences of opinion have appeared.

As a result, three systems have been adopted as the "National Standard" for approach lighting.

EARLY APPROACH LIGHTS—In the late 1930's an approach light system was installed at Newark. Red neon proved satisfactory for penetration of fog and smoke and also did not produce a glaring light. A series of these lights were placed, as an extension of the left runway lights, for a distance of 1500 feet out in the approach zone. The nickname "ladder" came naturally to this system as the lights looked like the rungs of a ladder to landing pilots.

Dissension began almost immediately. A 1938 report says because of the poor visibilities that so frequently prevail at Newark, a movement is on foot to have these neon approach lights extended out half-way from the end of the runway to the range station.

The *Neon Ladder* system of approach lights was in wide use at civil fields in the U. S. by the time of World War Two and it continues as a major civil system.

All during WW II, the Navy and Air Force used *Two Parallel Rows* of red lights, extending up to 2400 feet into the approach zone. This type of approach lighting was merely an extension of the runway lighting. There are seven Naval Air Stations presently listed in Pilot's Handbooks as having this system. A few Air Force bases also continue to use it.

In the early 1950's the Air Force adopted the *Overrun* system of approach lighting. It is essentially a *Two Parallel Row* system, red lighted, extending 1000 feet into the approach zone. The left row consists of triple lights with a single row on the right side.

Three other civil systems will be found in limited numbers in the U. S. One is the *Slopeline* system which was the nominal U.S. standard from 1949 through 1953. Only four remained in service by 1955. The other is the *Left, Single Row, High Intensity* system. When the airline pilots objected to the slopeline, the left single row was adopted as a compromise.

The left single row consists of bars of white lights, laid flat on the ground, placed out into the approach zone as an extension of the left row of runway lights. Two of these installations had red lights instead of white.

Third system in limited use is the *Centerline (High Intensity)*. The light sources are the same as the left single row and are simply an extension of the runway centerline. NAS Miramar is listed as having this system.

NATIONAL STANDARD "A" — U. S. Standard A is the present civil system. It consists of

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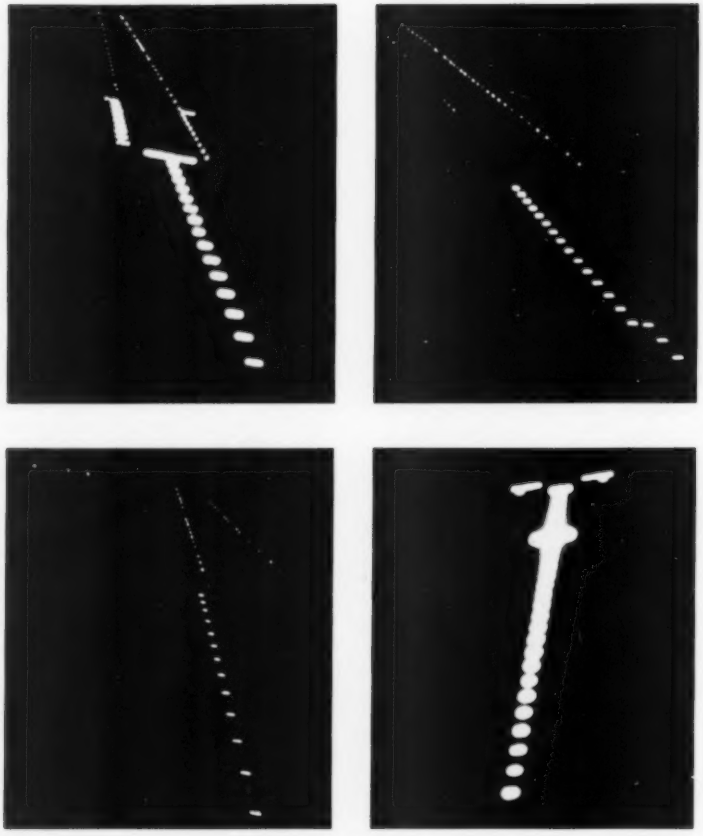


These four light patterns form a great portion of the approach light systems in the U.S. At top left is the U.S. Standard B (Air Force); top right *Left Single Row;* bottom left *Neon Ladder* and lower right *U.S. Standard A (Civil).*

white slopeline bars, 100 feet apart, laid flat on the ground, extending 3000 feet into the approach zone—like the high intensity centerline lights, these form an extension of the runway centerline. At 1000 feet from the threshold there is a "crossbar" of white lights. This crossbar extends 50 feet on either side of the center row of lights and gives roll guidance plus distance information.

A line of red terminating lights appears just before the threshold is reached. Red "wing" bars are also seen before each group of threshold lights.

STANDARD "B" — This is the Air Force version of the national standard. It is basically the older Air Force Overrun system with a red lighted centerline extending into the approach zone. At 1000 feet from the threshold, where the red centerline ends, there is a red cross bar. Depending upon the amount of space available in the approach zone, the red centerline lighting will be at least 500 feet long and may extend up to 2000 feet. Although this is the Air Force system, it will be found at some civil fields.

STANDARD "C"—Standard C is the Navy system for national standard approach lighting. It has the features of the slopeline system with the centerline style of the British Calvert system (single lights instead of bars). The only one in operation is at NAS Patuxent River.

RECENT DEVELOPMENTS—Few Navy pilots will see them, but this discussion of approach lighting would not be complete without mentioning the use of centerline stroboscopic flashers. Both Idlewild and Newark in the New York City area have them and the Air Force tested them at March AFB in California.

The flash system has so far been used with Standard A approach lighting. The strobe units are located at each of the first 20 white centerline bars at Newark and Idlewild, leaving the last 1000 feet to the threshold with just the centerline bars. In the March installation the strobeacons are brought to within 100 feet of the threshold.

Each strobeacon emits a brilliant flash of 30 million candlepower twice a second in a specially timed sequence. The flash is non-blinding as it lasts for only 1/3000 of a second and by flashing in sequence the effect is like that of blazing balls of fire rolling at 2600 mph toward the runway threshold.

In tests at March AFB the Strobeacon light was reported to have been seen at a distance of

approximately three times that of the reported visibility.

For example, when pilots reported one mile visibility, the Strobeacon light was normally sighted at three miles.

PLANNING INFORMATION—The CAA Flight Information Manual says that an Instrument Landing System includes approach lighting. At first glance it can be assumed that if the airport has ILS it will have approach lights. Unfortunately this does not work out as only about 60 percent of some 158 fields with ILS have approach lights listed.

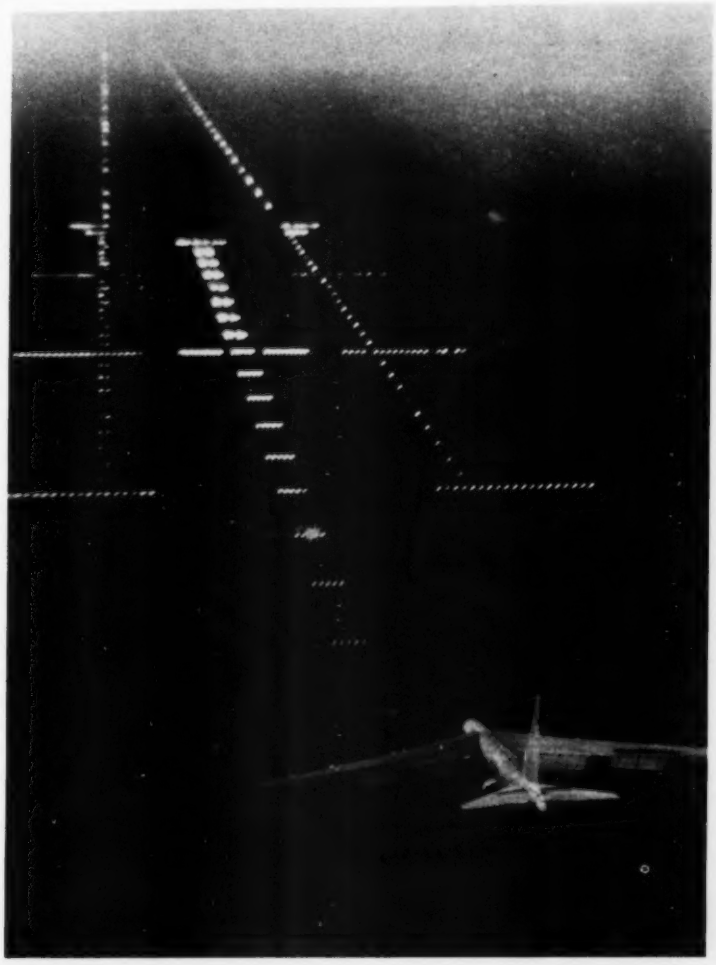
The Directory of Airports in the Radio Facility Charts is one place to find out if a field has approach lights. Under the "Lighting & Svcg" column, "L5" means approach lights of the neon ladder type. "L7" indicates high intensity approach lights.

Best source concerning what type of approach lights a particular field may have is the letdown plate in the Pilot's Handbook. Look at the drawing of the field layout in the lower right hand corner. The approach lighting system will appear as a miniature coded drawing at the end of the runway having the approach lights. For the meaning of this code, look in the first pages of the Handbook.

On fields showing *Left Single Row, High Intensity,* it is best to crosscheck with the RadFac Directory of Airports as some letdown plates show white high intensity lights (L7) but are listed in the Directory of Airports as L5 (amber neon ladder). Information in the Directory of Airports is considered later and hence more correct. At minimums it could be disconcerting to expect one color but see another.

Until such time as there is agreement on the most desirable system of approach lighting, pilots will be faced with various types when flying in the U. S. Speaking practically, this state of affairs will continue for some years, even after a single system is chosen as a National Standard, due to the factor of economy.

Thus to obtain the maximum assistance from runway marking and approach lighting, a pilot must be familiar with all systems. It might serve to repeat an earlier statement: Being familiar with the differences is just as important as knowing that the markings and lighting exist. ●



During late 1956 Navy and Air Force aircraft participated in joint approach lighting tests at March AFB. Featured in the system were stroboscopic flasher lights which operate in sequence and give the effect of tracer shells traveling toward the runway centerline.

Anymouse

and his hairy tales

CONVERT

"AFTER completing a radar check flight in an S2F, we had an hour to kill before returning to base. I had not flown for over two weeks and decided to shoot a few landings as a refresher. I made three full-flap, touch-and-go landings and then turned downwind to make a no-flap landing.

"I wasn't high enough at the 180-degree spot so I pulled the nose up to gain the necessary 200 feet. I paid attention to my props (they were forward) and my approach. My copilot reported 'all down at the 180 to the tower and we continued our approach.

"At an altitude of 150 feet the wheelwatch fired a warning flare and the tower ordered a waveoff on the radio. This was the first indication that we had not lowered our gear. We took an immediate waveoff and avoided embarrassment. The wheelwatch was on his very first watch.

"The only solution is to *use the checklist!* We used it on the initial landing and then trusted our memory on the next three. Believe me—I'll never be without that checkoff list again!"

RESOLVED

"THE aircraft involved was an early F4D which had been on bailment since production. Consequently, it was far behind on service changes and modifications. The cockpit was considerably loused up with test indicators, experimental radar, and the instruments, except for the engine gages, were scattered and antique.

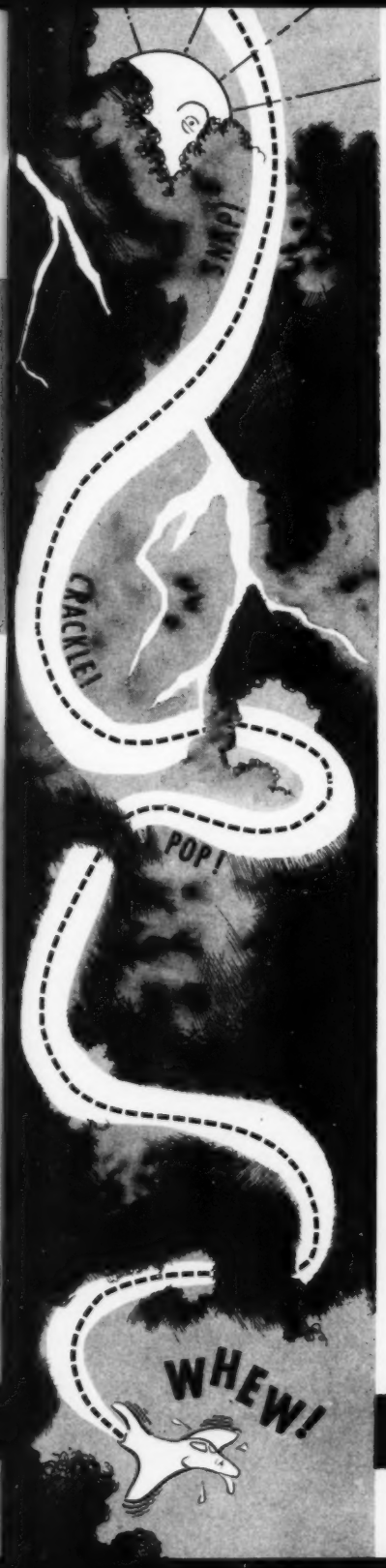
"No emergency instrument inverter was in the aircraft (no provision) and no engine anti-icing equipment. The pilot had about 25 hours in model with 1100 jet hours. In view of the foregoing, the flight was planned according to ferry rules, though filed IFR, 1000 on top.

"Weather between El Paso and Memphis was forecast to be VFR with the exception of a cold front near Pine Bluff. Surface conditions were marginal to good with rain showers and thunderstorms. Heavy cumulo-nimbus build-ups were predicted in the front but no data was available on the tops.

"The first three-quarters of the hop were routine but the front came into view well before its predicted arrival in the area. On closer approach it become apparent that the saddleback chosen for the crossing was filling in rapidly. The adjacent Cb's were rising and building at a very rapid rate. A 180 was made and I descended to 40,000 where another 180 turned the plane toward the front. Then I lit off the burner.

"About one minute prior to the initial 180, a position report had been made to Pine Bluff radio, and I called again to pass on the "on top estimate," which was 49,000 feet. The climb back to the front was according to the climb schedule, except that in trying to cheat a bit I got slow and sloppy. By this time I was too close to make another 180 without going into thunderheads on either side, so I leveled off and went into the soup, trying to regain climbing IAS, and hoping to pop into the clear on the other side of the saddle in a few seconds.

"I noted a light coating of rime ice beginning to form on the windshield and intake ducts but did not take the time to check for the anti-



The purpose of Anymouse Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hairy or unsafe flight experiences. As the name indicates these reports need not be signed. Forms for writing Anymouse Reports and mailing envelopes are available in readyrooms and line shacks. All reports are considered for appropriate action. Please send your reports to the Naval Aviation Safety Center, NAS, Norfolk 11, Va., now!

icing switch. I had not remembered seeing it on the preflight cockpit checks. The plane was very unstable and accelerating very slowly and took all my attention to hold in level flight. Turbulence was only moderate at this time.

"Suddenly what sounded like a series of explosions wracked the plane, and I reduced power and checked the gages. Nothing seemed amiss, so I set up a slow descent at cruise RPM. About 30 seconds later there was another series of bangs and the engine flamed out.

"I threw the fuel system into manual and tried an airstart. As the engine accelerated to idle it banged again and again flamed out. I decided that intake ice plus low IAS had brought on air starvation and compressor stall, and that I'd be okay if I could ride it down to a warmer level. I gave Pine Bluff another call with a position estimate, situation and intent. The operator came right back with a roger, reported no traffic below me down to 9000 feet, and said there was an area southeast reporting breaks in the clouds, about 25 miles from my estimated position.

"I secured the battery, since there was no inverter to run, and set up a descent like a free-falling train since the gyros were already getting sluggish. The AC generator cuts in at about 60 percent and the best windmill RPM I could get was 36 percent.

"I attempted a normal airstart at 20,000 which was successful except that when I applied enough power to get more than 60 percent, the engine again flamed out in a matter of seconds after more banging. The few seconds above 60 percent had given the gyros a new lease on life, and I continued the ride. Turbulence was heavy to severe by this time, and I had difficulty in staying within 30 degrees of my heading toward the thin spots, and could hardly stay right side up. At 12,000 I tried another light-off and was successful. This time I stayed at about 70 percent and leveled off at 10,000 feet. About this time I reached the hole in the clouds and after a few gusty breaths, started a climb back to an altitude suitable for the hundred-odd miles to Memphis.

"I called Pine Bluff again and began a slow recovery from the battering the descent had given me. From what I could see over my shoulder, I'd come right down the middle of the biggest cu-nim I'd ever seen in the States.

"I resolved:

"Never to underestimate the surprises inside a thunderhead, even though I'd previously made many intentional (and authorized) penetrations;

"I would spend more time getting familiar with strange cockpit configurations;

"Not to overestimate the performance of the aircraft;

"Stick closer to my flight planning—in this case to stay VFR!

"The resolution I didn't have to keep was the one I'd made at 40,000; that one was to eject at 10,000."

Continued from preceding page

THE BALLAD OF HAPPY HARRY

At six hundred feet in an old P5M
Too heavy to climb any higher.
The pilot reached down to transfer some fuel
And the fat fell into the fire.
He reached for the engine gas switches
And silence then reigned in the air;
The copilot lunged for the quadrant
And the throttles began sprouting hair.

The pilot then smiled and un-puckered
And turned the switches back on:
"Just transferring fuel," he said slightly,
"And you thought the engines were gone!"

With a roar the engines recovered,
And nearly pulled off of the plane.
By full decrease pitch they were kept within bounds
And the flight plan continued again.

At two hundred feet in an old P5M
Too heavy to climb any higher,
The plane captain transferred all of the fuel
And the pilots headset was on fire.

GROUND-CHECKED OK

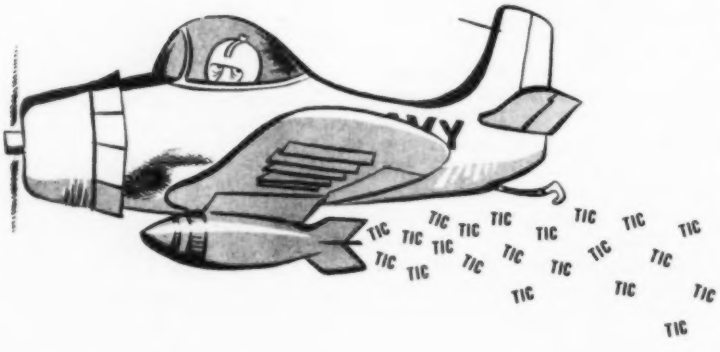
NO ANYMOUSE forms are available in this ship, so I'm using this form instead. On the first run of an ordnance hop in an AD-5N from a carrier in WestPac, the 500-lb. GP bomb on the left stub rack (Mk 51) failed to release electrically. All switches, circuit breakers, and the center station lock were rechecked, and a second attempt at electrical release was made, also without success. Attempts at manual release were met with no success, *but an empty gas tank on the center station released on the first pull of the manual release cable, in spite of the fact that the lock was engaged.*

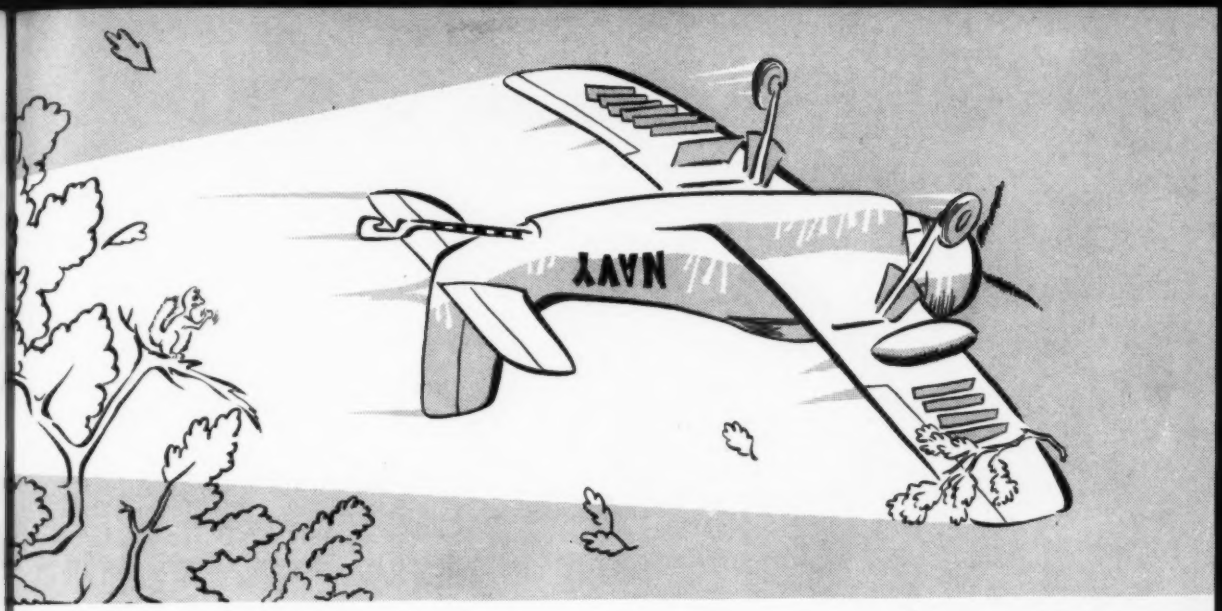
This could have proved very embarrassing had the tank contained fuel necessary for the successful completion of the flight. More attempts at manual release were made, combining high G-forces with hard tugs on the cable, but the bomb refused to budge. The rockets and bombs on the outer stations all fired/released satisfactorily, including the manual release of empty FFAR pods.

There was one other aircraft in the flight, another AD-5N, which had the same problem, although the gas tank on that aircraft was intentionally jettisoned. Both aircraft were sent to a diversionary field, and very gentle touchdowns were made about 10 minutes before the field went 'zero-zero' in ground fog.

After the fuses were removed, the bombs were removed from the racks by the field ordnance crew. It was discovered that the racks would release by very light taps on the release mechanisms. A slightly hard landing would have almost certainly have caused the bombs to release!

To this mouse, the hairiest part of this tale is that the racks and the center station locks both 'ground-checked o.k.", and no abnormalities or the reason for the malfunctions could be found.





SHOWOFF

THIS Anymouse instructor and another instructor in ADs entered the break at an outlying field. Anymouse was wingman, and just as they entered the break he switched to tower frequency. He heard the last part of a transmission from the leader, did not understand it, but automatically "rogered" it. The leader broke and almost simultaneously Anymouse broke behind him. What the leader had said was to break long as he wanted to land on the numbers and effect a short turnoff, all of which would require a slow approach.

Anymouse followed the leader around the approach feeling the aircraft getting slower and slower. Still trying to impress himself and anyone else watching, he followed the leader down for a section landing. At the 90-degree position, Anymouse noticed the airspeed at 90 knots. About this time the leader, unaware that Anymouse was so close, found himself being blown a little wide by a port crosswind. He tightened his turn and instead of landing right, lined up left.

About this time Anymouse had to fly through the leader's slipstream at about 85 knots.

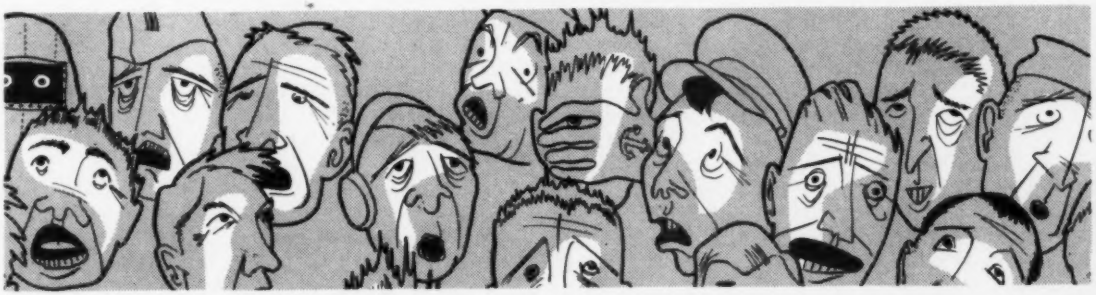
"There I was, upside down at 100 feet and no place to go but DOWN! I felt the aircraft going and immediately applied full right rudder, shoved the now stalled, useless stick in the upper right corner and applied full power. I somehow got the wings straight up and down, dragging the tip through the tree tops. By sheer guts, that old 3350-26WA kept the nose up for several seconds and then it stalled again—this time however it fell through on the right wing and planted itself on the runway. No, it didn't even bounce.

"I taxied in behind the leader folded my wings and shut down. I had succeeded in impressing the crash crew, the tower, several civilians, and above all myself!"

Anymouse has several recommendations:

First, don't roger a transmission unless it is heard and understood.

Second, just because you might be an experienced instructor, accustomed to seeing daily mistakes in student flying, don't let yourself think you are immune to the need for constant attention to safe flying procedures. Above all maintain flying speed. WHEW— ! ! !



headmouse

Dear Headmouse:

Above 35,000 feet a crewman in the back of my TV-2 said his Mae West had inflated and was causing considerable discomfort. I told him to remove the CO_2 bottles to release the pressure in the jacket.

This did not do the job for some reason, and he asked to remove the vest. I consented, and the vest was removed with a great deal of struggling.

I spoke to him over the intercom and got no answer. A glance at the rear view mirror showed his head slumped on his chest. I immediately started a dive exceeding 6000'/min., meanwhile yelling for him to go on safety pressure.

I continued yelling and saw his first movements at either 18,000 or 8000 feet, being more interested in watching him than my altimeter, since I was VFR. When the crewman became fully conscious I told him we were going to land as soon as possible. He was totally unaware of what had happened and felt no ill effects.

As was later determined, the mask inlet valves were leaking badly but of more significance was the mask itself. The rubber had deteriorated so badly that the mask could not fit the man's face properly. His struggles with the lifevest pulled the mask away with an even greater leakage.

I recommend greater emphasis about the dangers of flying with a bad mask and further recommend greater care be exercised in storage and handling of masks where a few masks are used for a large number of crewmen.

—ANYMOUSE

Congratulations, Anymouse, for a job well done. You may have saved the life of your passenger.

Inflation of a lifevest under a properly fitted parachute harness can be very uncomfortable. Anymouse had the right idea—Aviation Clothing and Survival Equipment Bulletin 9-54 (formerly T.O. 64-51) points out that deflation of the CO_2 compartments may be accomplished only by removing the CO_2 inflator caps. If this did not relieve the pressure, either the parachute loft had not removed the valve cores as prescribed in ACSEB 9-54, or the pressure had built up in the center compartment which is inflated orally.

If the latter is the case, how did this pressure build up?

Perhaps this chamber was not entirely deflated following a check, or someone had been playing with it on the ground. The small quantity of air in the center chamber would not be noticed prior to flight, particularly by an inexperienced airman, but as the aircraft climbed to altitude this air would expand. At 18,000 feet the volume would be doubled. At 36,000 feet the volume would be about six times as great as on the ground. It would not take much air in the vest at ground level to expand and build up pressure at altitude. It would appear that in this case the locking screw could have been backed off and the oral inflation valve depressed to relieve the pressure.

The oxygen difficulties fit a now-familiar pattern. A relatively uninitiated passenger hurriedly borrows a mask from a pool or an acquaintance. He is not familiar enough with ACSEB 7-54 (formerly T.O. 61-51) to know the proper preflight procedure and his pilot apparently forgot that he is responsible for this man's life in flight—not the job of transporting a body.

The whole business of transporting passengers in TV aircraft appears to resemble a modified form of Russian roulette. Flying at altitude in military aircraft is a highly specialized profession. The hazards are recognized by Congress (hazardous duty pay) and insurance companies (extra premiums). Still, everyone is anxious to experience the thrill of observing the earth from seven or eight miles up.

Passengers should be indoctrinated as completely as the pilot, using only equipment fitted by the flight surgeon. Squadron personnel in need of general aerial indoctrination and training, and those hitchhiking, will enjoy the ride far more if they do not experience hypoxia, aeroembolism and the myriad of other physiological inconveniences associated with high altitude flight. "A few masks for a larger number of crewmen" is like a few more live rounds in your game of roulette.

Very resp'y,
Headmouse

"Old Pro" or "Pettibone"

Dear Headmouse:

It seems there is a bit of conflict in Safety Center thinking regarding the best plan of action in emergencies. This is the argument. OpNav, NavAirPac and others have stated their policy regarding flame out landings. Basically this policy seems to be a "if there's any doubt about the situation, get out." As Safety Officer I preach this plan, and tell my pilots that the flame out landing statistics are a bit grim unless everything (prepared field, weather, recent practice, etc.) is perfect.

My efforts, and the spirit of both OpNav and NavAirPac flame out landing guides are shot down by the "Old Pro" club in APPROACH. In that feature we get some really hairy tales—The kind conducive to high hysterical giggles. I have seen several accounts of successful flame out landings under preposterous conditions, (as far as I am concerned the pilot did everything right except eject). And instead of getting a refresher in flame out landing statistics the pilot joins the "Old Pro" club. It is difficult to argue with success, but picking the exception to the statistics and applauding his luck is not the best way to influence young aviators. I do not want my pilots attempting to duplicate a hairy tale from the "Old Pro" club and ending up as another fatal flame out statistic. He either joins the "Old Pro" club or the "Pettibone" posthumous club. club.

So, gentlemen, please use a little more discretion in your selection. The idea is good—but don't shoot us down by hurrahing the lucky exception.

ANYMOUSE SAFETY OFFICER

There's no conflict. In fact the preliminary draft of the OPNAV was written here. Thought we had shown in each such OLD PRO the favorable circumstances which influenced the pilot's decision. In the future we'll bend even further backwards, for we certainly do not want to lead anyone astray!

—HEADMOUSE

Hyd. Pressure Light

Dear Headmouse:

I KNOW of two cases where experienced *Demon* pilots, faced with an emergency due to engine failure, did not lower the emergency ram-air-driven hydraulic pump which furnishes hydraulic power to the power control system for actuation of the flight controls. There is now a third case—me.

As a safety officer I have given about a jillion lectures, checkouts, cussings, pleadings . . . and have really become familiar with the bird. I have thought out all the emergencies that could possibly happen and have made countless dry runs which included dropping the ram air pump.

When this hairy tale started, it was quick—1000 feet, 400 knots and number 3 in a 4-plane flight about 3 miles from base.

There was an explosion in the engine, followed immediately by another explosion. Anymouse brought the throttle around the horn, pitched up and out of formation, switched to guard and gave a "Mayday" report. He attempted an airstart, bent the *Demon* around toward home plate, with much gusto.

From initial explosion to touchdown was less than a minute and in that minute Anymouse failed to lower the ram air pump.

There was no hydraulic warning light on and while doing about 15 things at one time Anymouse just plain didn't think of dropping the pump.

The design of the emergency system is such that the red light comes on when the hydraulic pressure in either the power control system or the utility system drops below 1500 psi.

When the engine RPM drops the hydraulic pumps for the normal systems are no longer able to supply enough pressure to operate the power controls and therefore the ram air pump is installed. But when that light comes on you have already lost your pressure and are going to run out of control in a very short time.

Why not jolt these experienced pilots by making that red light come on before they run out of hydraulic pressure? . . . I doubt if many pilots could forget to drop the pump if that big red ball were staring them in the face. If the change saved just one pilot it would be well worth the trouble.

I'll bet that in the two other cases that the mice were 'shook-mice' too when they realized that they hadn't lowered the pump!

BuAer's fighter division recently considered the proposal of making all emergency drop-out units fully automatic. Its conclusions are that all these units should be manually operated. However, feasibility of installing a light on the instrument panel to let the pilot know when the unit is out is under consideration.

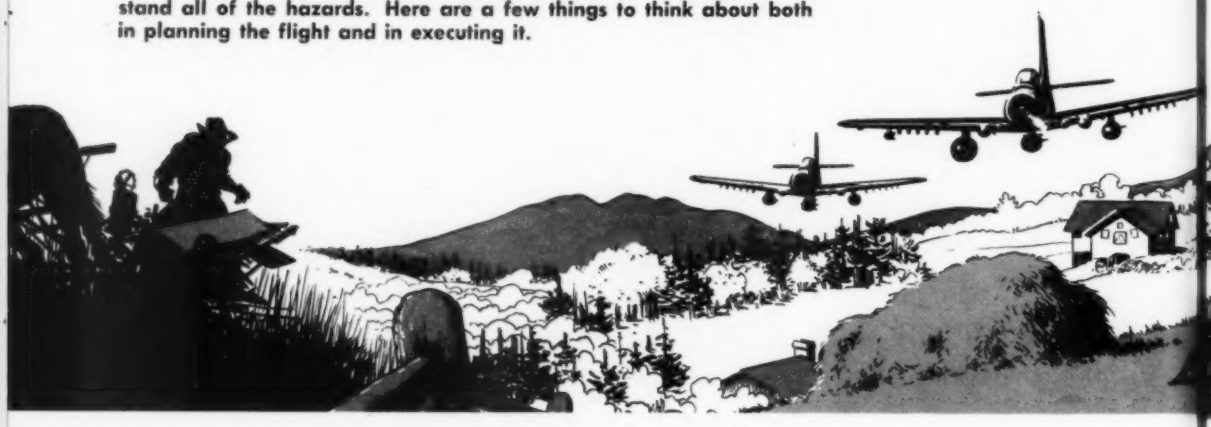
Very resp'y,
Headmouse

Have you a question concerning aviation safety? Send it in to Headmouse on an Anymouse Report and he'll do his best to help.

Correction

After the final printing but before distribution of the January APPROACH Headmouse noted that he had misspelled the name of guest contributor CAPT John Sinkankas. Headmouse regrets the error, and again thanks the Captain for his informative comments on personal equipment.

A number of low flight accidents have occurred and the explanations for why they happened show that some pilots do not truly understand all of the hazards. Here are a few things to think about both in planning the flight and in executing it.



FLYING LOW

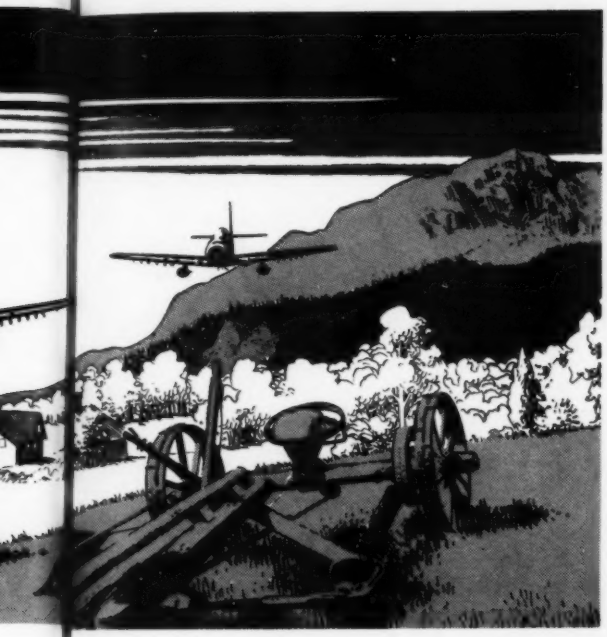
FIRST, in regard to planning. We have had several instances where far too much reliance was placed upon sectional and regional aeronautical charts insofar as showing hazards to flight. Specific reference is made to power lines which are virtually invisible until you are right on top of them, too late to do anything about it. Certainly the charts show *some* of these lines but you must remember that they are placed there primarily for navigational assistance, like railroad tracks in the old days when radio aids were practically nonexistent. The point is, power lines are not printed on the charts as *hazards.* It is assumed by the designers of these charts that the vast majority of flights proceeding VFR will be *above* 500 feet terrain clearance.

This means that only the most outstanding visual aids to navigation will appear. Obviously if every prominent feature and low level obstacle in the vicinity of a large metropolis were to be printed on the chart, there would be no room for anything else and the chart would be a horrible mess of criss-crossing lines, dots, circles, lettering, etc.

To put it bluntly, don't excuse yourself from actually going out and surveying a prospective low level navigation route from a prudent altitude just because an aeronautical chart fails to show obstacles.

THE next issue which causes numerous complaints in low level flights is the use of ground radio facilities as check points or turning points, especially radio facilities serving busy airports. This matter has been discussed before in an Air-Pac Safety Bulletin but reports of flight violations still keep coming in. We can only re-emphasize the fact that towers have enough trouble keeping track of incoming and outgoing traffic from their fields without having to worry about formations of low level flyers suddenly appearing out of nowhere and flashing by at great speed.

The problem is complicated by the increasing employment of high performance jet aircraft which operate from these fields. They need a long



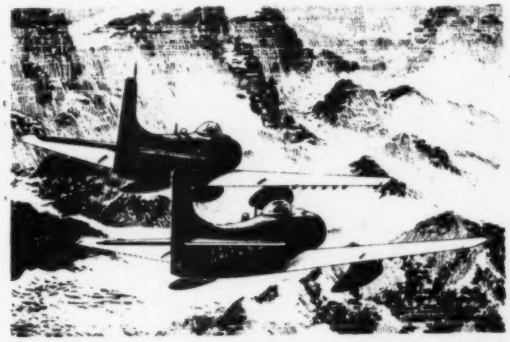
LEVEL?

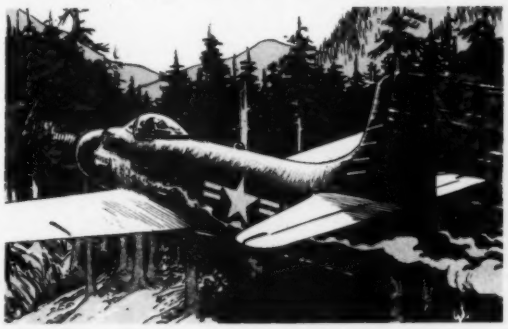
low approach and consequently traffic patterns have become a lot wider. What was once a generous clearance around an airport is no longer enough. Such fields (particularly military) must be given a wide, wide berth.

THE third place where trouble occurs in low flying is in the area of ground strafing or other types of low altitude deliveries of ordnance. Here is the place where a form of legitimized flat-hatting seems OK to some pilots who are still wet behind the ears. The unalterable fact, however, still remains: the closer you get to terra firma, the greater the danger.

For instance, there's the case of the pilot who was given a strafing mission on an abandoned airfield. He came in low—very low. With beautiful precision, he just missed the top of a small wooden building sitting out in the middle. Unfortunately there happened to be a mast projecting from the top and the nose of his jet made a bullseye on about the top four feet of it. The pilot didn't know about that little detail and anybody who was familiar with the layout didn't think it was important enough to cut him in. The pilot was lucky on this one though, and he got away without a serious accident.

We remember another case which didn't turn out quite so well. In this one, another simulated strafing mission involving an F9F, the pilot recovered too late from a dive and killed himself. Here's where that "supervision" we hear so much about pays off. If that pilot had been told in no uncer-





tain terms that he had to recover by a certain minimum altitude, and was made to believe it, he would still be with us today. It's easy to adopt the attitude that such things are common sense and pilots don't have to be told to keep from killing themselves. We wish we could agree, but it just isn't so! We know they don't want to kill themselves but we do not agree that they are always experienced enough to recognize a dangerous situation when it develops. This, we believe, is the chief duty of supervisory personnel—to tell the younger lads and to CONVINCE them!"—*"Pac Rat" in Air-Pac Bulletin, July '57.*

Have white card...

MY name's Mayday. I'm an aircraft accident investigator, 1310. Just finished writing my report on a bad one. Need never have happened. Pilot dead, several homes destroyed, one private citizen injured. Lesson to be learned from it too. Report's too long, already gone in. Have a seat, I'll tell you about it.

Flew a T-28 home on a cross-country. Spent a quiet weekend with the folks. No heavy drinking, no parties, no personal problems. Checked the weather Sunday, decided to RON. Monday wasn't much better, but he decided to go. Showed some apprehension about the weather when he filed. Told the folks they might as well head back home, not to wait for his takeoff.

Instrument experience, very limited—less than 20 hours "actual" out of 2000. His DD-175 showed it. Asked for a clearance that wasn't compatible with normal IFR traffic. Ever ask for a clearance from the airport to the omni facility 15 miles *back* from the direction you wanted to go? Yeah, lots of pilots still think they have to do that. This one did, too!

Guess he expected to get cleared that way too. Asked for several repeats of the clearance they gave him at the head of the runway. Finally "Rogered" it at 1021. His clock was running out, but he didn't know it.

1025. Took off and disappeared into a 600-foot overcast. Minute later he reported 3000 as instructed. They told him to contact Center on 255.4mc.

1029. Things must have happened fast for him from here on. He reported 4000, "heading for intersection." Center asked for his "Intersection" estimate, got no answer.

1031. Crashed and burned two miles from the end of the runway.

Two miles in six minutes. Twenty knots? Couldn't do it, even with the one right turn he had been cleared for. Must

have milled around up there.

In fact, we know he milled around some. Witnesses saw him come down out of the murk. Barely pulled out and went right back up again. Almost straight up. Turned a little just before he disappeared. Next time someone saw him he was diving full bore. Plowed right into the chimney sketched in on this picture. Not much left of the chimney, is there? Or of the house.

I had lots of help on this one. State police, local citizens, Air Force people. They all helped. Witnesses, sentries, technical people. No evidence of any material failure. Witnesses said the engine was running good. From what we know and found, we're pretty sure he got disoriented, probably got vertigo.

But that doesn't close the book. I sat back here for several days and mulled it over. Why? Why disoriented, why vertigo? Not that the T-28 is the best machine for IFRing, but it'll certainly go along if you fly it and plan it right.

Plan it. Well, he planned it. No, he didn't plan it the way he finally got cleared.

An experienced IFR pilot would never have been faced with the surprise of a totally different clearance. He'd find out what the most probable clearance would be. In some places, like NAS Norfolk, he'd even see it posted, big and readable. So when this fellow, already apprehensive about what appears to be his first flying-alone IFR flight, got a different clearance, the clock started its last ten minutes.

What happened in the cockpit in the next four minutes? Compute his new flight plan, last minute check of instruments and radios, taxi out and line up. Doesn't seem likely that he had time to do more than locate "Intersection" in the Rad Fac before he shoved off.

At 1029, the Center asks for his Intersection estimate. Now, still in a climb, the pressure is really on, and suddenly. Distance to the intersection—not shown from his departure point—where's the pencil to measure it with—computer—where's the right page?

There he is, two hands wrestling with an immediately necessary nav problem. His single engine laterally unstable bird needs his hand and head too. Has a tendency to spiral divergence. So it slides gently into a wing-down attitude, then it noses down too. Seat of the pants probably warned him to drop the book. New problem, again immediate and sudden. Even while VFR recovering from a spiral takes time enough. Here's a lad doing it in the soup, alone, and for real.

By the time he gets things under control he's out from under the murk and sees a windshield full of ground. Reaction here must have been pretty instinctive. No time to think about levelling out VFR and getting reorganized. Just time to haul back upstairs, but this time as the surroundings became dark grey the situation became dark black.

In the soup. Disoriented. Unusual attitude. Cool outside, but mightly sweaty hand on the stick. After this point I'd say the end result was almost inevitable. Next time he saw the ground there just wasn't room.

Well what can you say? Don't fly T-28s on IFR? Don't fly 'em IFR solo? That would be just a step on the way to saying "don't fly, period". If you want to be sure of having no accidents, just stack up all the planes at Litchfield Park and I can go look for a new job. That's what I'm working toward—eliminating my job. No accidents, no accident investigators.

No, I wouldn't advocate that. Not that I enjoy my job. But I'm supposed to investigate an accident and make recommendations in my report. Sometimes it's pretty hard to be original. Why should I even have to recommend that pilots shouldn't take off if they're in doubt about their ability to do the job? Especially on a routine return from a weekend boondoggle? No ship to miss, no deployment to delay, just a straight case of "Boss, I got back late because I didn't think I could hack the weather". I've done it. The boss was unhappy, but he had many big problems. I was only one small one. And I'm here.

Want to know what I recommended? I took six pages. Drank lots of coffee over them too. After you sort through all the bits and pieces you get to feel pretty close to an accident. Read the pilot's history, his log book, talk to witnesses, family.

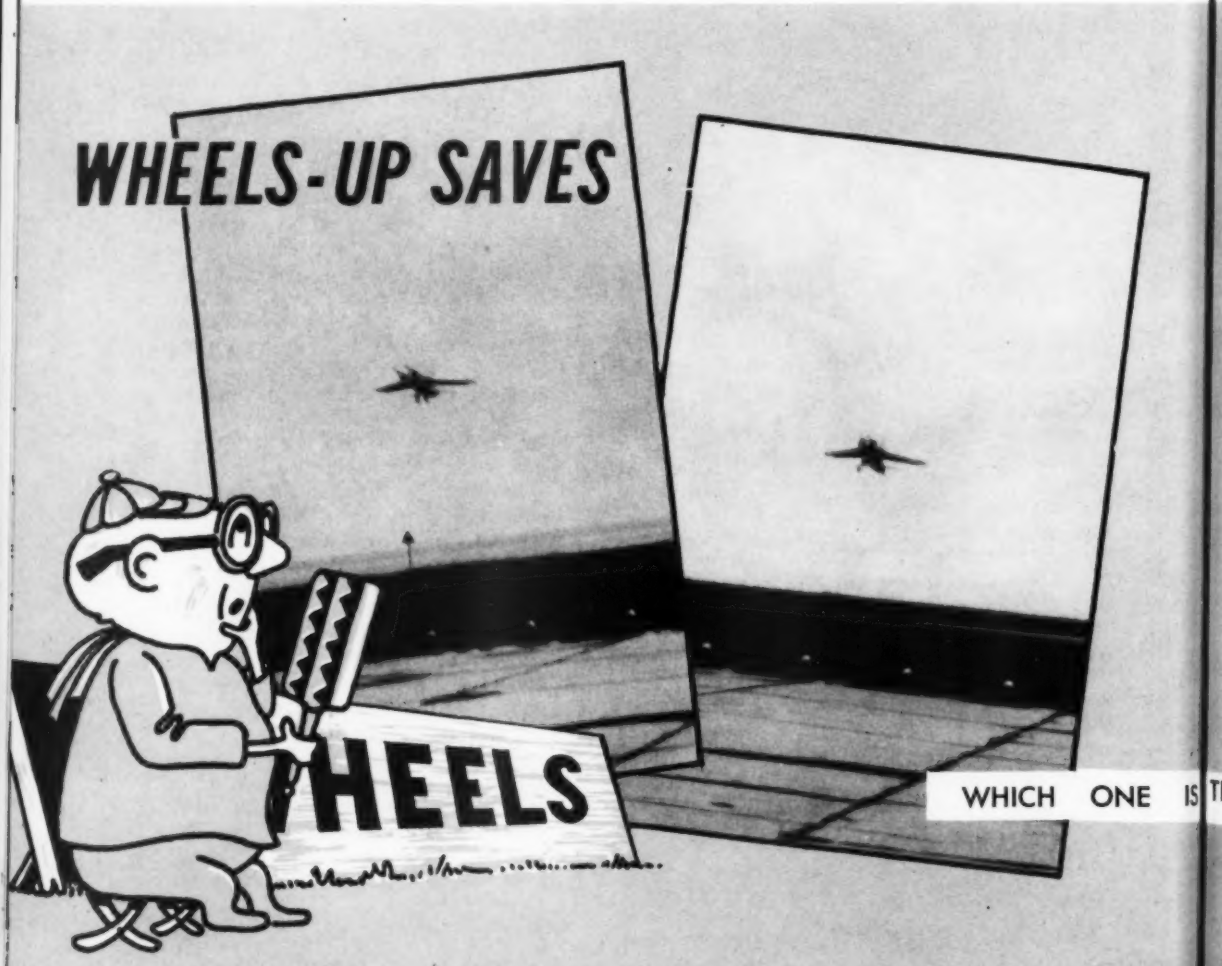
Continued next page

HAVE WHITE CARD— Continued

I recommended that all station safety officers get hot and slap up a BIG blowup of the local area and show the most probable departure routes and clearances. We have plenty of letdown information in books but very little scoop about standard departures. And there are standard ones. Most of the local pilots know them by heart, but pilots fly from one place to another and every pilot is a transient sometime. Some places even prepare a mimeo of standard clearances and hand them to transients—isn't that a break? Man can look 'em over, follow 'em on the big chart, and just verify the clearance when he gets it, fill in the blanks. The U. S. Coast & Geodetic Survey (CAA) Radio Facility Charts show these. They're not distributed to Naval Aviators. I wonder why?

I know that won't cover all situations. What happens to the pilot who lands at West Pumphandle, Arkansas and has no ops office to file from? Well, pilots should know that the CAA facility is still there to help safely planned flights get flown safely. Pilots can still contact the tower or range station and ask them to find out the most probable departure even before they file. Save a lot of refiguring in the air.

This wasn't the first accident that had "what is your intersection estimate" as its last transmission. Some of them did



manage to answer, "wait one."

I made another recommendation that shouldn't have to be made too. I said that there are too many pilots like this one who carry around a valid standard instrument card and shouldn't.

Too many friendly up-checks. Not enough real honest serious life-saving down-checks.

Sure it hurts to give a down. You fly with the guy. You roll for stingers with him. Then you check him and have to say "Sorry, but you're not to be trusted IFR." Not easy at all. So he gets an up and you cross your fingers and say "he knows he isn't too sharp so he'll never use the card." You can make it sugar-coated and friendly as you like, the end result still has to be a white card denied to a person who doesn't deserve one.

Maybe this guy did real well on his last check, I don't know, but with only 16½ hours of actual instrument time, I wonder. There are plenty of pilots who just plain *can't* get in enough flying time to honestly deserve the responsibility that a white card gives *and demands.*

1630: Time for a few practice putts before it gets dark. I always have to leave my phone number with the duty officer though. Can't tell when I'll have to grab my toothbrush and run to another scene like the last one. I wish there wouldn't be any more. My putting's getting rusty and my travel toothbrush is covering too many miles. ●

BOX SCORE

Wheels-up landing, major accidents, unintentional, pilot induced

Nov & Dec 1956	5
Nov & Dec 1957	5

Name	Station	Aircraft	Date
PETRIE, D. L., ACTAN	NAS IWAKUNI	AD	30 Sept 1957
BULLARD, J. A., PVT			
DAVIS, W. R., AC3	NALF CROWS LANDING	FJ	17 Oct 1957
MURTAGH, G. A., AC3	NAAS CORRY	nr*	14 Oct 1957
RACHEFF, B. N., AC2	NAAS CORRY	nr*	15 May 1957

* not reported

BEGINNING with this issue the Wheels-Up Landings Box Score will compare periods in which the posting of wheels watches was required. Prior Box Scores appearing in APPROACH compared periods of "no-wheels-watch" with "wheels-watch-on-duty." Wheels watches to prevent wheels-up landings were established by OpNav Inst. 3750.7A of 9 Oct 1956. It was implemented by most activities the following month.

During the 12-month period before wheel watches 53 unintentional wheels-up landings were reported. The first 12 months after wheels watches saw the number *reduced to 25*—an improvement we all agree but the only acceptable figure for this type accident is ZERO.

IE IS THE PHONY?

In these photos you are seeing an F11F as it would look from the end of the runway getting ready to land. You are the Wheels Watch. Which one would you wave off?

Left—This *Tiger* is *not* ready to land—those are divebrakes you see extended. Wave him off! His wheels are up.

Right—Give him a "roger". —His wheels are down.

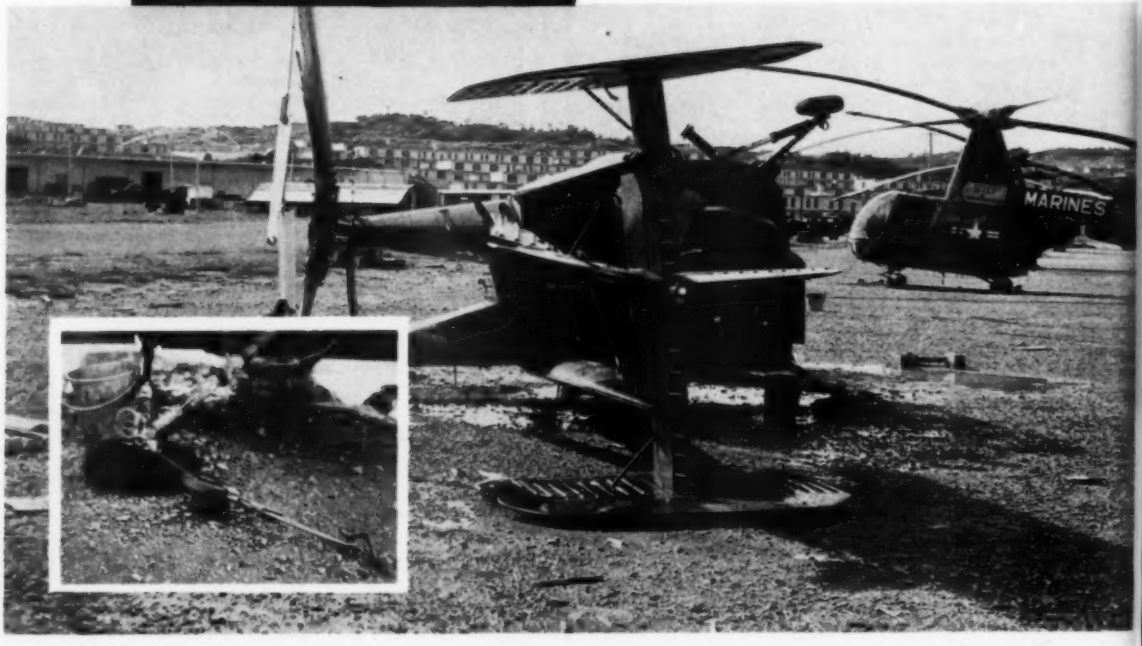
truth and consequences

A DIGEST OF SIGNIFICANT AIRCRAFT ACCIDENTS

HASTE AND WASTE — "It is standing operating procedure in this squadron," said the squadron skipper, "for all helicopters to be either pushed clear of the parking area or else be ground taxied clear of the parking area prior to lifting.

"During the past month this point has been brought to the attention of all pilots on the average of once a week during the daily pilots meetings. Emphasis was placed on the safety angle in regard to the close proximity of aircraft on the line and also on tne additional maintenance problems due to rotor wash throwing particles of dirt and coral up into the engine compartments of parked aircraft."

In view of the clear cut instruction, the pilot in the follow-



Disregarding squadron instructions the pilot attempted his takeoff from the tiedown spot. A tiedown (inset) which had been overlooked on the preflight tripped him up.

ing accident received disciplinary action.

The pilot in question was the squadron duty officer and received a message that a passenger pick-up flight was required for the next morning.

In the cool gray of the dawn the duty crewman and mech preflighted an HOK and stood by for the pilot. Upon arrival he did not accept the aircraft due to a discrepancy in the blade flap bearing. Another helicopter was then unsecured, preflighted and accepted, though only 16 minutes elapsed between downing the first aircraft and getting airborne in the second, which to the accident board was evidence of a hasty preflight.

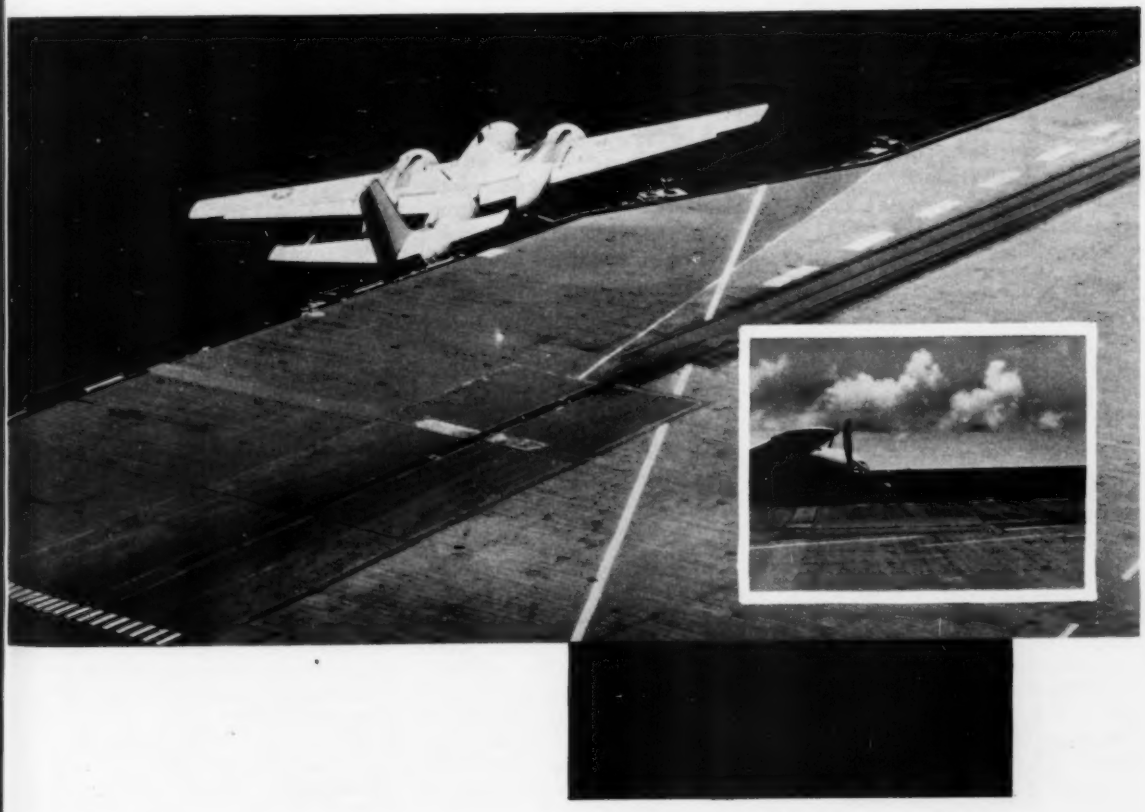
The crewmen offered to push the aircraft out to the runway and away from the parking area but the pilot elected to lift off on the spot (22-foot blade-tip to blade-tip separation in the parking spots).

About two feet above the deck the aircraft started to drift left at which time the taximan noted a tie-down to the left rear wheel was still attached. He gave a hold signal which was not seen by the pilot as he was trying to correct the left tipping tendency of the HOK. It continued to tip left until the rotor blades struck the ground and shattered. No damage was done to aircraft parked on either side, nor did either the pilot or crewman receive injury.

ANGLE AND THE AXIS— After cargo had been loaded aboard a TF-1 the pilot started the engines and went through the checkoff list. A few minutes later he found out that the safety equipment was not secured correctly and a few minutes more were needed to finish the job.

About that time more mail was brought out and loaded. As soon as the mail was aboard the pilot was taxied forward by the ship taxi director for a deck launch. All this time there was the usual launching activity on the flight deck; two other COD aircraft plus two ADs had already made deck launches.

A series of delays in loading and crew security had occupied the pilot's attention. When he was already on his deck run he looked ahead and too late saw that he was headed down the angle deck.



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"When the taxi director had me stop abeam the flight deck officer", said the pilot, "the co-pilot told me that my crewmen were not secured in their seats." While the pilot was trying to hurry the crew into getting secured he thought he heard the tower say there were 36 knots of wind down the angle deck. The flight deck officer signified ready for a two-finger turnup but another minute delay was required.

Finally the pilot was able to nod ready for launch. Throttles were advanced and the flight deck officer waved the aircraft down the deck. "At this time," continued the pilot, "I looked ahead for the first time and saw I was pointed down the angle deck . . ."

The flight deck officer, who stated the aircraft was lined up for an axial deck launch, watched with widening eyes as the TF-1 appeared to veer to the left toward the angle deck. The pilot glanced at his airspeed indicator and noted 60 knots when about 40 feet from the end of the angle deck

With a total deck run of less than 200 feet the loaded aircraft rolled off the edge of the deck and the pilot let the nose drop to pick up flying speed. When he felt back pressure he stopped the descent and began to climb.

No one felt the plane hit anything and the controls were normal. It was not until the next morning's preflight that damage to the right aileron was found. It had collided with a radar antenna of the carrier's forward port gun director.

ICED-UP SNB — The plane involved was an SNB. The route was from a southern Pacific Coast air station northeastward toward Salt Lake City. Leaving Daggett along Amber two, the minimum en route altitude stairsteps from 9500 feet up to 12,000 feet.

Weather briefing for the trip was turbulence, scattered rain showers, rime ice in clouds, freezing level 4000 feet, freezing precipation near the freezing level and scattered snow showers. Takeoff time was 0640 and the pilot of the *Beechcraft* was cleared to maintain VFR conditions on top.

Shortly after passing Las Vegas (MEA 10,000 feet) the pilot saw he would not be able to maintain VFR on top. He requested and received 11,000 feet and prior to going on instruments made the normal precautionary moves: cockpit and running lights ON, carb heat (10-15°C), de-icing boots operating. He briefed the copilot to watch for carb heat, manifold pressure drop and wing icing.

After slipping into the soup the flight progressed normally for about 20 minutes. A little clear ice formed on the wings and windshield then all radios went out and a drop in manifold pressure was noted and full heat applied. The port engine regained power but the starboard one dropped to about 12" mp.

In spite of a fire-walled port engine, altitude could not be maintained and the pilot reversed course, settling about 500 to 800 feet a minute. Airspeed was 80-85 knots with buffeting and an outside temperature —5°C.

No doubt temperatures were higher in the cockpit, as the pilot ordered the copilot and lone passenger to bail out when the *Beech* slipped throught the minimum en route altitude of 10,000 feet. The copilot went out the door quickly but the passenger hesitated. At the time the rate of descent slowed to 200 to 300 feet and the

FLIGHT VIOLATIONS

AMONG other tidbits of useful information received here at NASC, we (occasionally) get reports of flight violations. As of 1 Nov 1957 there were well over 500, closer to 600, flight violations on record since Jan 1950! That comes out to an average of nearly seven violations per month. And they cover a wide range, from flathatting (the most prevalent) through ADIZ penetrations, ATC violations, all the way down to the one who took an unauthorized civilian woman for an unauthorized airplane ride.

We (and you) have heard complaints too, of VF types making runs on SAC bombers during their RBS bomb runs—this is somewhat akin to charging by the girl friend's house while standing on the saddle of your motor scooter. An RBS run is a carefully studied, planned, complex operation; its entire purpose and effort (and the airplane too) can be wiped out by your showmanship, and you're not showing them a thing that they don't already know.

Our own Heavy Attack people do RBS runs too—talk to a VAH pilot or bombardier next time you get a chance and see what a list of names they have for people who clobber up their run. A lost run often can't be repeated because of fuel limitations. And if you're counting on remaining anonymous, remember that the bomber is being tracked by a precision ground radar—the RBS boys are pretty good at tracking unwelcome intruders too.

pilot shouted for the passenger to standby.

The right engine was secured but altitude still could not be maintained and the pilot ordered the passenger to "GO"!

After the passenger bailed out the pilot tried several times to trim the aircraft so he could jump. However the plane went into a steep dive and the pilot abandoned his attempts to get out. At 7500 feet the outside temperature had risen to +1°C and the ice on the windshield began to melt. The right engine was started and operated normally. Then the radio began to work and communications were established with Las Vegas radio.

The pilot was not out of the woods yet as Las Vegas had a 1000-foot indefinite ceiling, one mile visibility with light snow and ground fog, however, he completed his approach and landed successfully. Both the copilot and passenger were picked up uninjured by the Utah State Police.

Loss of power on the starboard engine was traced to carburetor ice due to an incorrect installation of heater muff assemblies and wrap-lock clamps. This resulted in heat loss and ineffective manifold heat action when severe and instantaneous icing was encountered.

At 32,000 feet the canopy blew with uncomfortable results for the pilot.

BANGI — ". . . Airspeed was about .8 mach . . . The altitude was about 32,000 feet when the canopy (of the FJ-3M) blew with a loud bang.

"I didn't realize at first what had happened. My ears were ringing from the blast and I couldn't see very well due to the wind blast being so heavy and the fact that my new APH-5 hardhat was sitting cockeyed on my head.

". . . the hardhat had rotated about 20 degrees so that its left edge was almost parallel to my left eye. The chinstrap which had been secured tightly before the beginning of the hop had slipped up and was in my mouth somewhat similar to the way a horse would wear a bit.

"The visor in the hardhat, I feel was partially responsible for keeping the hardhat from blowing away. It afforded as good a protection from the windstream as could be expected at that speed. My oxygen mask pulled away from my face. How far, I don't know. It then rotated with my hardhat so that the nose-piece was under my right eye. The retaining straps or tightening straps on the mask had loosened considerably because it was quite a few moments before I got the mask readjusted and tightened down.

"After I calmed down and figured out what had happened I let down keeping my speed below 200 knots . . . and headed for home. . . ."

Material failure, directly attributable to personnel error, was considered to be the primary cause of the accident, in that the canopy glass was not properly secured in the canopy frame assembly.

It was recommended that aircraft with pressurized cabins be pressure-checked after any repair work that might affect the pressurization system, and particularly after repairs have been made to the canopy. It is felt that a pressure-check would have revealed the unsecured canopy glass at O&R, where immediate corrective action could have been taken.

SUCKER HOLE—"I was flight leader of a two-plane element of FJ-3Ms with LTJG ____ as wingman . . . I took the lead and formed combat formation.

"We engaged other of our fighter formations . . . at altitudes ranging from 33,000 to 21,000 feet . . . and were . . . at about 28,000 feet .982 (IMN) in a right turn, skirting a milky cloud area when he reported a flameout . . . about three minutes earlier he reported a 1500-pound fuel state . . .

"LTJG ____ announced shutting off TACAN and I gave him a TACAN bearing and distance to the field for orientation. Upon acknowledgement of his position, I told him to cut off excess electrical loads to conserve battery power . . .

"He maintained a glide speed which seemed to range between 260 and 220, letting down slowly past the field and heading for the bay area south . . . His first attempted relight . . . was at about 26,000 feet. His next attempt was at about 22,000 feet as indicated by fuel vapor from the tailpipe. ("Squadron emergency procedures state that

Continued from preceding page

initial starts should be attempted at 20,000 feet or below. This was on the emergency card issued to the pilot).

"My impression up to this point was that he intended to maintain position over the shoreline favorable for ejection in accordance with squadron flameout policy. The first indication that he might be intending a flameout landing was when he headed back for the field.

"I had in the meantime acquainted the tower with the situation and was told the field had gone IFR with rapidly lowering visibility. I then advised the tower I was not definitely aware of his intentions and called another pilot to fly along side LTJG ____ and signal for ejection. Present altitude was about 17,000 feet.

". . . It appeared LTJG ____ intended following him back southward when suddenly he dove steeply for a break in the cloud layer. LT ____ followed him."

At this point we take up the narrative of the LT who followed the LTJG down and attempted to get him to eject by hand signals.

"His attention was concentrated in the cockpit most of the time and he looked at me only when we were near the field, asking where it was. I pointed out the field which was barely visible through the haze and clouds.

"At this time I also signaled to eject, directing with my hands to turn south and then pull the curtain. I went through the motions twice and had an acknowledgement from him. We were at 7000 feet at this time and started to turn south when we saw the field plainly about one o'clock at about two miles through a hole in the clouds.

"He immediately started a diving turn to parallel the runway and entered the hole in about a 45-degree dive. I fell a short way behind and as we passed through 3000 feet I was indicating 300 knots. The visibility was extremely low and I could no longer see the field. At about two miles south of the field he turned back, lined up with the runway, and flew down to a few feet above the terrain.

"I was behind and above him and believe that his aircraft was in a clean condition when he passed over the field. As he approached the runway he turned to the right at between 250 and 300 knots. He continued very near the deck and as he left the field he veered slightly to the right to a heading of about 30 degrees." (Though the pilot was familiar with various instructions squadron and otherwise concerning ejection policy, his decision could have been affected due to a previous successful flameout approach caused by a low fuel state. However, the previous one was made under ideal conditions and when the engine flamed out LTJG ____ merely completed his approach to a successful landing).

A pilot in the control tower observed the aircraft and reported the flight path this way: "I saw the aircraft diving towards the end of the runway, but with excess speed. The aircraft flew parallel to the runway at low altitude in a clean condition, still at an excessive speed.

"It passed the northern boundary of the field and gained altitude to what appeared to be about 50 to 60 feet, and started to zig-zag slightly as if LTJG ____ was looking for a favorable landing area. After leaving the field boundary I saw that he had lowered his flaps. The aircraft turned to the right and disappeared behind some trees. A few seconds later a cloud of black smoke appeared."

One endorsement on the aircraft accident report noted that an inconsistency appeared to exist regarding the altitude at which the pilot was told to eject. "The difference", said the endorsement, "is resolved essentially in the delay between initial radio transmission and final acknowledgement of the signal.

The LT pulled alongside the JG and hand-signaled for him to eject. However, the JG caught a glimpse of the field and attempted a flameout landing. . . .

NOTES FROM YOUR flight surgeon

Go Easy

AS A result of hearing tests conducted for periods ranging up to four years, it has been concluded that many personnel exposed to aircraft engine noises on the field and in test cells still continue to exhibit increased hearing loss. The reason? Ear protectors are just not being worn!

Personnel who do wear ear protectors and who are assigned to ground check, especially those working with certain powerful jet engines and with afterburners, have continually complained of discomfort and temporary deafness because ear defenders apparently do not give adequate protection.

In view of these facts, it was found necessary to increase the ear defense already afforded with equipment that gives more ear protection.

A number of "Noisefoe" protectors were purchased and were so well accepted that sufficient quantities were procured to provide all personnel at this station exposed to jet engines on the field and in test cells. This type of protector is listed under Stock No. R37-H-725-105 (with variations for size and color of helmet—justification required for non-fleet use). For those individuals assigned to guided missiles, who require radio communications, additional units with built-in earphones have been ordered.

It is strongly recommended that the ear defenders with over-the-ear protectors be used, for with this added protection continued hearing loss is not anticipated— *BuMed Occupational Health Hazards.*

Red-Out

THIS F4D pilot was on a routine tactics mission. The plane had a right-wing-heavy tendency, but it did not appear alarming.

As he made a turn to starboard, and at about 40,000 feet, the aircraft began to roll. After a one-and-a-half slow roll it halted, snapped both external tanks off and reversed direction into a rapid snap roll. Another abrupt halt and another snap; but the pilot had begun to red-out and could see neither terrain nor panel and was almost unconscious. He estimated negative G-forces at 2- to 3-G for 5 to 10 seconds.

He reached up with his right hand and pulled the face curtain. "I faintly recall hearing the canopy separate. I apparently lost consciousness as I next found myself flat on my back spinning at a terrific rate. The forces were so great I was unable to use either my legs or arms in a scissors maneuver to roll over. I was also unable to turn my head so that I might look down at the terrain and estimate the altitude. I was able to force my right hand to pull the bailout bottle.

"All of a sudden I had an extremely warm sensation throughout my body and I pulled the rip cord. The parachute opened immediately and I estimated my altitude to be 1500 feet. I had just enough time to release my chest buckle and check on the security of my knife as my feet struck the water."

He was rescued an hour and a half later, uninjured except for a sprained shoulder.

The pilot was wise not to delay his ejection when he experienced the red-out, or he would have been unconscious and unable to eject.

No Nothin' but Luck

A REPORT on an AD-5 ditching reads: no exposure suit, no life vest, no life raft, no means of attracting attention; shoulder harness tight and locked (but also frayed and not inspected since 1955), lots of loose gear in the cockpit, including grease can, spark-plugs and padlocks.

Fortunately, there were no difficulties, no injuries; the two men were rescued in 15 minutes by helicopter. Lucky, yes,—but what about next time?

Doc says: Many people work many hours to provide safety and survival equipment for the pilots. Although the gear is not perfect, it does have a record of saving the lives of quite a few pilots! Many more people are working many more hours to improve and perfect the life-saving qualities of this equipment. But it CANNOT help you unless you WEAR and USE it!

Red Face

RECENTLY a student put his helmet on the wing of the aircraft while he was putting his chute in the cockpit. The mask picked up some JP-4 residue on the wing. This combined with oxygen resulted in 1st and 2nd degree burns on one side of the fledgling's face. *Take care of personal equipment!*

E . . . is for

. . . is for

E is also for excellent, effort, eggs, eclairs, endocrine, enemy and emolument. But the first two items, Eating and Efficiency, are related more closely than any of the others. And especially so to *you*, o skillful steersman of supersonic sweptwing steed. Eat you must, and efficient you must be, but the mere act of accomplishing one does not guarantee attainment of the other.

Your Eating for Efficiency can be divided into two main fields, and since not all aviators are affected by both, *you* might be one of those lucky ones who has only one to worry about.

The first concerns what you *should* eat to keep your energy and efficiency level from falling below the high standard that is demanded by your job. Until science finds how to extract enough energy from a quick cuppa coffee and a cigaret, everyone who whips through that kind of breakfast is playing Russian roulette with himself and with the lives and safety of others, and with a valuable chunk of defense machinery too.

The second field concerns what you *shouldn't* eat, and applies only to those aviators who wonder why their G-suit is inflated, only to learn that it's the content, not the suit. Nosireebub, if you're out to prevent expansion of that equator area down around shirt button six, you've gotta expand your list of verbotens first.

EATING EFFICIENCY

Down there at the end, after flathatting, overstressing and jezebels, there's a list of things which your Friendly Flight Surgeon says must be added if you're to stay keen, alert, rough, tough and smart, like they used to say back at preflight.

But let's get back to what you should eat first, that's always more fun.

Continued next page

"If you think old sailors just fade away, try getting into your old uniform."—Salt

Continued from preceding page

The Egg and YOU

Swooping down over the runway the *Demon* was a thing of beauty in motion as it made a pass before commencing a routine landing. Wheels and flaps were down, wings level, but the approach—too high. A waveoff was executed, gear and flaps were retracted. The plane circled the field, once more pointed toward the runway, began to ease to the ground.

The bird touched down right where the pilot wanted it to. Metals scraped and sparks flew. Yes, another aviator had made a wheels-up landing. He committed this "unpardonable sin" in spite of the brilliant flares and frantic waving of the wheels-watch.

One lone EGG might possibly have kept a million-dollar aircraft flying and saved a blushing pilot much embarrassment.

Sound impossible? It isn't, and such an accident could happen to anyone at any time. *An egg can mean the difference between life and death.*

Actually, the incident related above is fictitious. The part about the egg, however, isn't. Such a crash, if an actuality, would be blamed on "pilot factor." The real cause might well have been "no breakfast."

Let's say the pilot rose late that morning, ate a hurried and completely inadequate breakfast of coffee and doughnuts, kissed his wife an inadequate peck on the cheek and rushed off to work.

By midmorning he was already anxiously awaiting lunch. He became more preoccupied with his state of hunger than with the task at hand—that of controlling a modern aircraft.

Aside from hunger (and more important to the medical men) his blood sugar level, not strongly enough fortified by an adequate morning meal, began slowly to deplete. The results were characterized by irritability, nervousness, easy fatigue and weakness.

The ultimate result: when the *Demon* came around for its second approach the pilot was no longer completely capable of controlling such a complicated aircraft.

According to a study by the Department of Agriculture, the consequences of low blood sugar (most significant in aviation) include delayed responses, which are themselves often incorrect or inappropriate, and profound impairment of rationality, reasoning and intellectual ability.

Eating a light, inadequate breakfast—or no breakfast at all—low blood sugar ("relative hypoglycemia" says Doc) will render any problem or stressful situation less tolerable and more difficult to cope with.

In this condition, problems which require split-second decisions are less likely to be met with a correct solution or response.

What constitutes a common, but inadequate, breakfast as related to low blood sugar? It was found that no breakfast or a cup of black coffee alone resulted in no rise of blood sugar above that of the fasting state.

With the inclusion of sugar, toast or a doughnut however, a rapid but transient rise in blood sugar occurred, followed by a rapid decline to a low level. This in turn resulted in inefficiency, fatigue, weakness, headache and lack of coordination.

The reason for this decline is that the carbohydrate from doughnuts, sugar . . . , is digested almost immediately. Sugar floods the blood stream and insulin is overproduced. This in turn causes a dangerous drop in blood sugar.

Now this is where that one, lone egg enters the picture. The inclusion of protein, whether it be in the form of eggs, bacon, cereal, or milk, will fulfill the requirement for optimum blood sugar levels.

Protein regulates and slows the production of sugar so that a steady supply is provided throughout the morning. There is no doubt that well-being and efficiency during the morning hours depends upon the amount of protein eaten at breakfast.

A survey conducted at an Air Force base among student pilots discovered that as many as *50 percent* went flying without a proper breakfast. At the same time, the unexplained accident rate for the command was far too high.

With the information at hand, an "eat your breakfast" campaign got underway. When the pilots began to consume an adequate morning meal the accident rate of the command fell to the lowest on record.

Gulping a cup of coffee and quickly devouring a doughnut might be the expedient thing when you're getting a late start in the morning, but it's hardly the wisest thing to do. Far wiser is he who advances the alarm clock the night before to allow time for a full, proper aviator's breakfast.

If you don't eat enough of the right things, your blood sugar level will drop dangerously low. You'll become nervous, irritable, weak. By eating just one egg you'll be able to maintain that all important level—you might save your own life, and others as well, and an airplane too.

Not scheduled to fly? Have that egg anyway—you'll make friends when you change from a nervous, irritable scrooge to a kind, benign signer of special liberty chits.

Are you convinced that you need a good hearty breakfast before launching into the murky blue? Well, now that you've had your eggs over easy, let's step to another very related facet of this very enjoyable eating business—what you *shouldn't* eat.

Overweight Kills More People Every Year Than Cancer

Now that's a pretty strong statement to make, but we'll proceed to justify it and tell you a few things about overweight.

First off, when you're carrying a higher gross on your frame, you have to use more power to get around. Just like airplanes.

Second, all that extra blubber needs to be fed from your blood stream, and pushing more blood around through more channels puts an additional load on the old pump.

Third, all your excess tonnage isn't necessarily sitting out there behind the belt buckle, in plain view of God and man. No, there's a substantial amount left floating around loose in your blood, as tiny droplets.

These are the little rascals

Continued from preceding page

. . . the main thing you shouldn't eat is *too much*.

that really raise havoc with the system. There is a growing body of medical evidence to prove that these promote the deposit of a fatty sort of scale on the inside of blood vessels which narrows them down, hardens the walls, and in general decreases the amount of blood available to the tissues.

The place where this really hurts is in the heart. This is the first stage in the type of heart disease which leads to heart attacks, and people who are overweight are *far* more susceptible to heart disease than other types. And heart disease is our number one killer.

Overweight hurts you in other ways, not to mention appearance. Because of all the extra load on your heart, it saps your energy. You tire easily.

Two persons died in jet aircraft recently from decompression sickness. Both were overweight. Here is one place where every pound of fat is a gun pointed right at your tonsils. (The reason being that nitrogen, the gas that is the active agent in decompression sickness, is far more soluble in fat than in any other tissue.)

Just to mention a few others, high blood pressure occurs more often in people who are fat, as does diabetes and gall bladder disease. And if you ever come up for surgery of any sort, any surgeon will tell you he considers an overweight patient a poorer risk than one who is "in shape." Are you sold yet?

As a flight surgeon of MAG-27 said: "If it sounds like we're upset about this, it's just because we are! With someone's annual physical coming up, one of our chief dreads is all the people we're going to have to make unhappy by fussing at them about fat. Even if we didn't feel so strongly about it, BuMed *does*, and they tell us what to do. Better start to shuck the pounds now."

Which brings up the subject of—(ugh)—diets. Let's face it, there is *no* easy way to lose weight, no magic pill nor hormone. In order to do it, you must first make the sincere confession "I'm overweight because I eat just too doggone much." In fact 99.99% of all people who are overweight are that way because of simple overeating. When you take on more fuel than you burn, the rest of it turns to fat. The way to diet, though, is NOT to cut down to one meal a day. It's important that you eat three meals, but never a big meal, and never a snack between.

Which brings us back to your flight surgeon's often-repeated but seldom-heeded advice: The main thing that you shouldn't eat is *too much*.

We aren't going to tell you what is too much—your flight surgeon would cancel his subscription to APPROACH if we did, for he's pounded into us that you can't treat individual cases of overweight shotgun style.

If you want to lose weight,

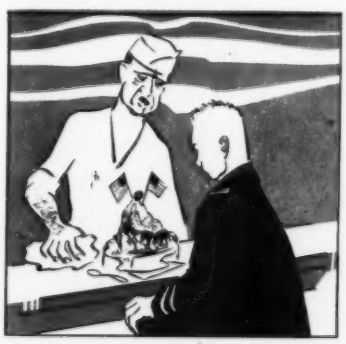
you should do it under his supervision. He can pinch and poke you and determine mighty accurately just what you should or shouldn't eat, and in what quantities.

Even though we're talking about eating, Doc won't limit himself (or you) to what goes on your plate—you might as well be prepared for what he's got to say about *alcohol* too. Besides impairing your efficiency directly, alcohol is loaded with calories—(the distillers are still working hard on creating a no-cal booze, but no target date has been set). *General rule of thumb: an ounce of grog has about the same number of calories as its proof.*

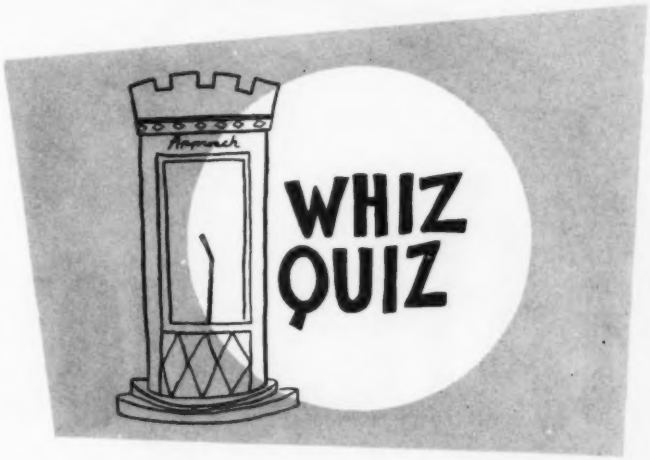
The time to start is *right now.* If you're on the coffee-and-a-kiss breakfast, keep the existing ingredients but add that all-important protein-providing egg. (If time is critical, we recommend you skip the coffee rather than the kiss; the coffee contributes little, but even the standard hasty smooch sends you off to work with a lighter, gayer step).

And if you're the Fat Man whom everybody loves, except your friendly flight surgeon, see him *now* and he'll almost guarantee that (with your cooperation) it will take a lot less sand to cover you up on the beach next summer.

'Scuse us, it's time for our creamed lobster salad!



"What'll you have to wash it down with sir—a cup of Gunko?"



1. Equipment which has exceeded the assigned ready-for-issue storage time limits shall never be used or installed in aircraft until after reprocessing?
   T------ F------

2. All shock struts and hydraulic actuating cylinders shall be wiped dry after each flight?
   T------ F------

3. Safety belts and shoulder harnesses will be inspected at least once every six months?
   T------ F------

4. Inspection of the pitot-static tube and the pitot tube and static vents should be made prior to each flight?
   T------ F------

5. After purging a fuel tank, put on the filler cap, but do not seal the vent opening?
   T------ F------

6. Prior to repairing rubber tanks they should be flushed with warm water?
   T------ F------

7. Parking brakes on aircraft should not be set while wheels and brakes are hot?
   T------ F------

8. Recharging an aircraft liquid oxygen system may be done simultaneously with refueling?
   T------ F------

9. Aircraft oxygen systems should never be recharged when the aircraft is in the hangar?
   T------ F------

10. Axial-flow compressor types of turbo-jet engines are seriously affected by the same atmospheric conditions which cause wing icing?
    T------ F------

1. False—T.O. No. 21-55, para 6b and 6b(1)
2. False—T.O. No. 1-55, para 6
3. True—T.O. No. 80-53, para 5(b)
4. True—T.O. No. 29-47, para 8
5. True—T.O. No. 56-45, para 2G(4)
6. False—T.O. No. 54-45, para 2B(5) Note.
7. True—T N No. 19-52, para 5(a)(4)
8. False—BuAer Clothing & Survival Bulletin 5-56, para 4P(2)
9. True—BuAer Clothing & Survival Bulletin 3-56, para 4Q
10. True—T N No. 5-55, para 5(B)

CASE I—

SOON after application of power for takeoff an explosion occurred in the aft section the A4D-1, upper right. The pilot aborted the takeoff and shut down the engine immediately. A small fire had started in the aft engine compartment which was extinguished by the crash crew with Du-Gas.

An immediate inspection of the airplane revealed that the explosion had been caused by the engine tailpipe separating from the nozzle. The tailpipe-to-nozzle clamp was found with the starboard bolt engaged but no evidence of having been safety wired. The port bolt was still in the clamp but the threads of the bolt were not engaged with the threads of the opposite side of the clamp. There was no evidence of this bolt having been safety wired.

It is concluded that upon installation of the clamp by the day crew the bolts were run up finger-tight, not torqued nor safety wired. At this point the job was turned over to the night crew and the proper securing of the clamp never accomplished.

CASE II—

DURING the 4th turn-up of the FJ-3M (lower left), following reinstallation of the engine, the overheat warning light suddenly illuminated. An instant later an explosion was heard and felt, and the engine was immediately secured. Approximately 6 feet of the tailpipe protruded from the tail of the aircraft as a result of the explosion.

The retaining clamp which holds the tailpipe to the engine cone was not properly secured. The port side securing bolt was not fastened to the nut.

The primary cause of the accident was improper inspection procedure by the maintenance check team after installation of the tailpipe to the tailpipe cone.

In this case there was a long period of time involved in receiving parts. *The confusion inherent in splitting the squadron for land based deployment and the requirement to reassemble the aircraft for shipboard security, resulted in broken maintenance continuity and a consequent high probability for human error to occur.*

Although all the requirements of the third intermediate check were properly signed off there was no proper checklist used for the final reinstallation of the tail assembly and tailpipe. The squadron has since formulated an inspection check-off list for engine removal and reinstallation when required for other than regularly scheduled periodic checks.

CASE III—

THE F3D-2M, (lower right) experienced the following:

Upon reaching an altitude of approximately 1400' after a normal takeoff, a severe bang suddenly occurred. The left engine fire warning light came ON and TOT began to drop steadily. The pilot secured the engine and made an immediate landing without further incident.

Failure of exhaust collector ring clamp assembly (R85 WXT 60E886-1) freed the exhaust collector and tailpipe unit from the engine. The exhaust gasses from the turbine blew the tail pipe back and jammed it in the aft opening of the engine cowl.

The exhaust collector ring clamp assembly failed across an inspection hole drilled in accordance with J34 Turbo Jet Engine Bulletin 241 dated 3 February 1956.

When jet tailpipes come loose, fire and explosions usually result. Here, two tailpipes blew out because maintenance processes had broken down allowing clamps (left) to be unsecured—one blew out because of material failure. One occurred during post-maintenance runup, one on takeoff and one during flight!

FROM THE GROUND UP

Selected Forced Landings,
Incidents,
Ground Accidents,
Notes and Comments on
Aircraft Accidents

DESCRIBING DISCREPANCIES—You as a pilot can help prevent accidents due to maintenance and material failure. When you come back from a hop with a discrepancy in the aircraft, enter it on the yellow sheet. Enter it in such a way that engineering crews will have no trouble understanding exactly what you mean. Don't make meaningless entries such as 'N. G.", "doesn't work", "Out of Order", . . . Use descriptive phrases whenever possible, such as "vibrates excessively at 2100 rpm", "oil leak # 1 Cylinder", . . . If you have time, discuss the discrepancy with the plane captain or crew chief.

OXYGEN GRIPE—After 20 minutes of flight the pilot of an F9F-8B noticed that his oxygen pressure had dropped from 1400 to 800 pounds. At this time he switched from 100 PERCENT to NORMAL oxygen.

Ten minutes later it was noticed that the pressure had dropped to 300 pounds. This time the pilot notified his flight leader and the section commenced a return to base.

As the flight passed through the 10,000-foot level the wingman's oxygen tank ran dry and the pilot removed his oxygen mask.

The wingman's report of excessive use of oxygen was investigated and a check of discrepancies revealed that in the past 30 days there had been a *total of seven oxygen gripes* and every one of them indicated excessive oxygen usage.

In the F9F-8B the oxygen system is a two-bottle system. It is filled at one connection and divides in the valve and fills both bottles. A careful check of the aircraft revealed one of the lines from the filler valve to an oxygen bottle to be clogged. When replenishment oxygen was applied to the filler valve only one bottle was filled. This bottle recorded normal pressures on the gage in the cockpit, but actually only one half the correct amount of oxygen was present in the aircraft. In effect, it was a one-bottle system.

PROPOSED ACTION AFTER AIRCRAFT HANDLING ACCIDENTS—An endorsement on a recent FLIGA (Forced Landing, Incident, Ground Accident) Report by a carrier division commander suggests the following action as a deterrent to the ever-increasing number of aircraft handling accidents:

a. As soon after the accident has occurred as flight operations permit, call a meeting of all aircraft handling personnel. The scene of the accident would be the most logical site for the meeting.

b. Require that personnel involved explain to the assembled group exactly what happened. Opinions concerning cause of the accident and lessons learned should be a mandatory part of each person's statement.

c. The aircraft handling officer should then declare the causes of the accident and order corrective action as indicated.

d. To complete the action, cognizant air department officers and petty officers must vigorously enforce the corrective measures prescribed by the aircraft handling officer.

The ship's commander reported that a turnover of personnel amounting to about 35% in a 2-month period had left the Air Department short of experience in some areas. This sort of a situation makes training of aircraft directors more than ever a continuing program.

MISSING COTTER KEY—During a cross-country flight in an S2F the pilot discovered he had no throttle control on the right engine. The engine was apparently stuck at a manifold pressure of 38 inches and movement of the throttle control produced no change in this reading. He made a 180-degree turn and headed back toward a civilian field which had just been passed.

Later, the throttle control to the starboard engine was traced out. It was found to be intact and operating normally from the pilot's throttle control lever to the quick-disconnect joint just aft of the carburetor. The quick disconnect linkage and the castellated nut which secures it to the carburetor were missing.

The quick-disconnect was located and was in good working order. All evidence pointed to the fact that the castellated retaining nut was not secured with a cotter key and that the nut backed off in flight, releasing the throttle linkage—A similar nut at the mixture control connection at the carburetor also was not cotter keyed (A in photo lower right).

In another incident reported at almost the same time, the pilot of a T-28C following a letdown retarded his mixture control from rich to normal on leveling off at 3000 feet. Upon doing so the engine stopped. The pilot was close to an outlying field so he made an emergency landing without sustaining damage to aircraft.

The cause of the occurrence was the mixture control becoming disconnected in flight. The *cotter key was missing* which allowed the hold down nut to back off allowing the mixture control arm to back out of the spline.

Uncotter-keyed, the throttle control linkage became disconnected in flight.

FROM THE GROUND UP–

continued

TRAINING NEED—Another TV-2 canopy was blown off as maintenance personnel were removing the rear seat. The TV received major damage and the person removing the seat suffered minor injuries.

The canopy jettisoning system operated as designed. It fired as the seat was being removed because the thruster initiator safety pins were not in place and the thruster discharge cable was connected.

The basic cause was personnel attempting to repair equipment on which they had not been properly checked out.

PRE-OILING PLUG CHECK—The pilot of an AD effected a forced landing when engine oil pressure was noted ZERO.

The pre-oiler plug had backed out of the engine and allowed oil to drain from sump. On engine inspection, metal found in sump necessitated an engine change.

It was determined that the plug had not been safety-wired by the activity which conducted engine pre-oiling on initial installation. Indications are that it was put in place only finger-tight. An informal investigation of squadron check-sheets shows that none mentioned the pre-oiler plug, the inference being that once an engine is pre-oiled, security of the pre-oiler plug is assured. (The general phrase "check sump plugs" is not interpreted to mean pre-oiler plug in that the magnetic sump plugs have commonly been referred to as "sump plugs").

It was noted that the pre-oiler plug is almost inaccessible, even for visual inspection, depending on how the oil lines adjacent to it are routed. Previously, the pre-oiler plug had not been considered a check-point on the 3350 engine installation in AD's.

It is recommended that pre-oiler plug security be inserted in AD squadron check sheets.

SHEAR POINT — The port wheel strut of an S2F-1 sheared during a hard carrier landing while the aircraft was in a left-wing-down, left skid. Examination of the strut for possible material failure clues revealed a bead of weld around the inside circumference of the strut assembly at the shear point. An inspection of other S2F aircraft revealed this weld to be present in all struts. Although this accident was not attributed to material failure and while the Handbook of Maintenance Instructions does not contain any information on this point of the strut it was believed by the Accident Board that this weld is to provide a shear point for improper loads of the landing gear.

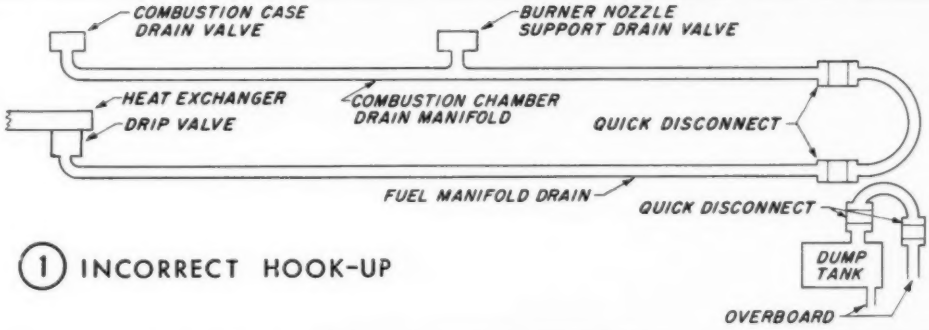
A tech rep of the manufacturer states that it is *not* a shear point that was designed as such but that it is not uncommon for S2F landing gear to shear at this point during hard landings.

COOK-OFF—While changing gunners during in flight gunnery practice, a 50 mm round of ammunition fired from the turret of a P2V aircraft struck the vertical stabilizer. The investigation failed to disclose a malfunction of any of the equipment. Although firing from the turret, prior to the accident, had been in short bursts, a "cook-off" is suspected.

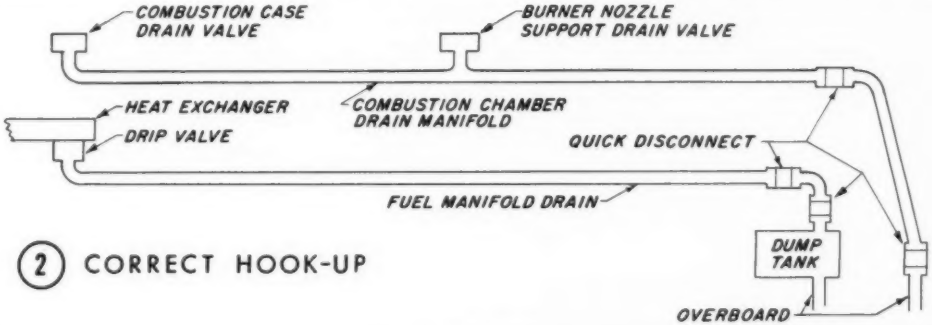
It was recommended that turret guns be pointed outboard while changing gunners in order to prevent recurrence of accidents of this type.

Ap

MURPHY'S LAW*



(1) INCORRECT HOOK-UP



(2) CORRECT HOOK-UP

EXPLOSIONS AFTER ENGINE SHUT DOWN—

When J71-A-2 engine of an F3H-2 was secured after a run in a muffler, an after-fire was experienced inside the engine. Three dry cycles were made without success in putting the after fire out. The engine was then started and a five-minute idle run was made. The engine was again secured and approximately 30 seconds later two explosions occurred in the aft section. The explosions were of such magnitude that the aircraft externally mounted intake screens were blown off the aircraft.

Upon investigation with engine out of the aircraft, a fire on the bottom outside of the engine beginning at the burner nozzle support drain valve back to the lower afterburner spray bars was evident. Further investigation revealed that the manifold drain from the combustion case drain valve and burner nozzle support drain valve was tied in with the drip valve drain line, (schematic number 1). The manifold drain line normally is vented overboard. The drip valve drain line is normally connected to the aircraft mounted dump tank. The dump tank is then vented overboard thru the mast on left side of aircraft, (schematic No. 2).

★ If an aircraft part can be installed incorrectly, someone will install it that way!

Tip-Tank

Miscellaneous aviation safety information

Vigil

SURVEY the air as continuously as you do the highway while driving a car. Distraction by conversation with others in the cockpit or by reading or writing a report without delegating a "watch" is contrary to good cockpit management in view of the near-miss danger. Organize responsibility for continuous vigilance. — *FSF APB 56-6*

Pilot Distress Procedure

THERE is a great deal of reluctance, on the part of the average pilot, to admit that he is in trouble. The desire to stand on one's own feet is an admirable ambition but you can't stand on them entirely if there's much air between you and the ground. — *CNARestra*

Arrival Reports

AN ABNORMALLY large number of pilots are still calling CAA Towers to close VFR flight plans. The result is that they get a violation for not closing their flight plan. You cannot rely on a CAA Tower forwarding your arrival notice. They have no obligation to forward it and in addition regulations specify that you shall call a CAA Interstate Airways Communications station. A CAA Tower is not an INSAC station. — *CNARestra*

EFR & FUR Aids Available

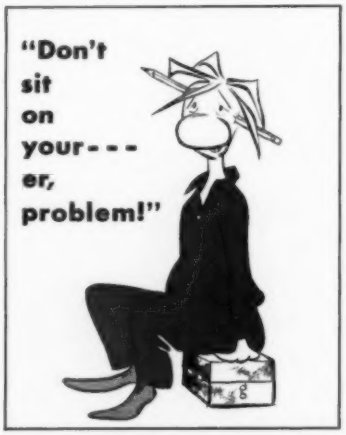
THE Bureau of Aeronautics recently distributed charts for preparation of failure reports. These include:

(1) Chart for completing Failure, Unsatisfactory or Removal (FUR) Reports.

(2) Chart for completing Electronic Failure Report (EFR).

The charts were forwarded for use by service activities and other type agencies as a guide for the preparation of failure reports to be submitted on all aeronautical materials. *It is suggested that these charts be posted in a conspicuous place in shop areas for reference.*

Additional copies of either may be requisitioned through normal publication supply channels.



Submit a letter, a FUR or any Anymouse report—but get it told, for safety's sake!

Travel Guide

WITH the introduction of A3D's into the Heavy Attack program, VAH pilots based at NAS Sanford have sometimes been faced with the immediate need for diverting to another field capable of handling the *Skywarrior*.

Excessive crosswind components, emergency field closing or the well-known Sanford "duty thunderstorm" in summer afternoons need not worry the Heavy Attack crew that's prepared though, and thanks to a large readyroom chart, VAH-5's crews *are* prepared.

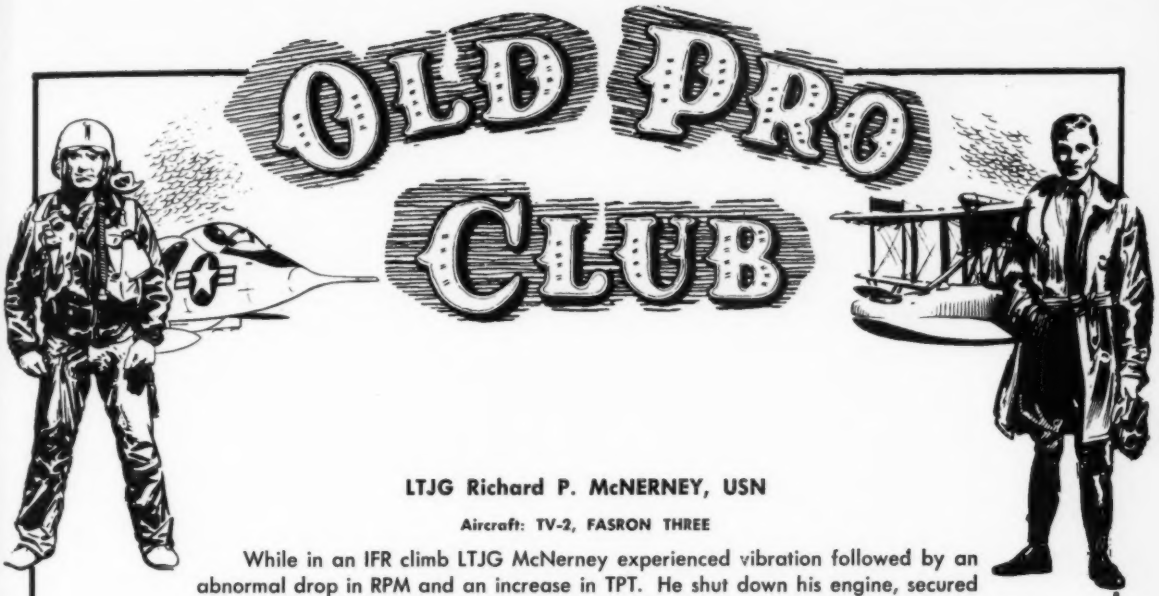
The chart is complete with pictures and vital data that shows all recommended diversionary fields within 300 miles. Below each field photo is given the distance and heading from NRJ, elevation, runway length, and fuel required to get there. Pilots carry a knee-pad size replica of this highly useful chart on all flights.

Hot Point

CIGARET lighters are useful gadgets, but they can be dangerous, particularly in flight. A letter from a jet pilot recounts an experience:

"I was flying a jet in an air show and was in the Number 3 position of the second element of a 16-ship flight forming a diamond. We were flying in tight formation when I began to feel a burning sensation on my left leg, under my seat belt. The burning became increasingly intense, but I couldn't take my hands off the controls to find out the trouble. At the first opportunity I called the leader and got permission to break out of the flight.

"Subsequently I discovered I had unconsciously put my cigaret lighter in my flight suit pocket, the lighter fluid had leaked out at altitude, and that caused the 'burning.' The same thing recently occurred when I was flying a liaison plane, but this time I recognized the difficulty and removed the lighter."— *FSF Bul 57–15*



LTJG Richard P. McNERNEY, USN

Aircraft: TV-2, FASRON THREE

While in an IFR climb LTJG McNerney experienced vibration followed by an abnormal drop in RPM and an increase in TPT. He shut down his engine, secured unnecessary electrical gear, broadcasted "Mayday" and requested a steer. Upon being informed of his position over water, he dropped his tip tanks, cut out aileron boost, and set up a standard flameout approach. Touchdown was made at approx 150 knots within the first third of the runway with no damage. Vibration was caused by a thrown turbine blade.

CDR. C. A. MCGUIRE, USN

Aircraft: P5M, VP-48

When his port outboard flap section carried away at 350′ on final, CDR McGuire heard and felt a heavy shock followed by a sharp roll to port. Right rudder, full right aileron and increased power on the port engine were applied in an attempt to stop the roll and yaw. After diagnosing the trouble, he raised the flaps, regained control of the aircraft, took a waveoff, subsequently making a normal no-flaps landing.

Editor's Note: While the foregoing incident was under consideration for Old Pro recognition CDR McGuire experienced a second low-altitude emergency; which merits equal recognition:

This time CDR McGuire, with the same crew, same plane experienced severe shake and shudder and loss of altitude during a night climbout. The P5M became extremely nose-heavy and nearly uncontrollable; back yoke and elevator trim were ineffective. Power was applied to stop the altitude loss, and a right turn back into traffic was made when a left turn was found to be impossible. A safe landing was made, after which it was found that the elevators fluttered rapidly when the controls were actuated, apparently causing cyclic stalling of the elevator surface.

Recognition of heads-up flying is essential to a positive program of flight safety. Each month, Approach will acknowledge certain selected individuals whose exhibited flying ability merits membership. Old Pro's also receive a wallet membership card as a memento of the occasion. Commanding officers are invited to submit nominations for selection.

RUNWAY SHORTHAND . . .

Turn to page 4 for a treasury of facts and figures concerning the vagaries of airfield lighting, runway marking and approach lighting you will find on U.S. airfields.

HAVE WHITE CARD . . .

The aircraft accident investigator tells of a gent who flew a T-28 home for the weekend. Weather was doubtful but he had a white card . . . Page 22.

E IS FOR EATING . . .

Some choice words on a topic near and dear to all readers. Your Friendly Flight Surgeon reveals some secrets about this popular habit. Turn to page 32.

TAILS YOU LOSE . . .

What happens when the tailpipe of a jet comes loose? on the ground? in the air? on takeoff? How do such things happen? For a photographic description of three instances see pages 38 and 39.

PLUS ALL THE REGULAR FEATURES

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